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UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF EXPERIMENT STATIONS
E. W. Allen, Chief

CLASSIFIED LIST OF PROJECTS

of the

AGRICULTURAL EXPERIMENT STATIONS

1927

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF EXPERIMENT STATIONS
WASHINGTON, D. C.

CLASSIFIED LIST OF PROJECTS OF THE
AGRICULTURAL EXPERIMENT STATIONS

1927

This list includes 6,628 projects of the State experiment stations and 155 projects of the experiment stations in Alaska, Guam, Hawaii, Porto Rico, and the Virgin Islands, reported as active in 1927. Of the 6,628 State station projects, 465 received support from the Adams fund and 788 from the Purnell fund. These are designated (A) and (P) in the list.

The projects are classified under the following headings, which are arranged in alphabetical order for convenience of reference: Agricultural Chemistry 44, Agricultural Economics 491, Agricultural Engineering 268, Animal Husbandry 973, Bacteriology and Similar Studies 12, Botany 26, Dairying 121, Economic Entomology 507, Economic Zoology 40, Field Crops 1758, Food Technology 17, Forestry 122, Genetics 181, Home Economics 124, Horticulture 1197, Meteorology 10, Plant Pathology 565, Plant Physiology 69, Rural Education 14, Rural Sociology 60, Soils and Fertilizers 538, and Veterinary Medicine 217.

There is much duplication in the list because it was considered necessary to include certain titles under more than one heading and it will be noted that there are numerous cross references. The sum of the projects in the different sections therefore exceeds the total number reported by the stations.

The classification of the titles was largely the work of the subject matter specialists of the Office, and the accuracy with which this task was accomplished is due to their painstaking care and interest.

July 1928.

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AGRICULTURAL CHEMISTRY

METHODS

- Investigation of proposed official methods of analysis. Referee for AOAC on method for determination of hydrogen-ion concentration. Minn.
- The biochemistry of carotincid pigments in animals. Minn.
- Protein investigations.--Physicochemical studies on derived proteins. Minn.
- Protein investigations.--Electrical conductivity of protein compounds. Minn.
- Protein investigations.--The basic amino acids of teosinte. Minn.
- Biochemistry (Protein research). (1) Cell chemistry (Study of nitrogenous concentrates of plant cells, both protein and nonprotein). (A) Conn. State.
- Biochemistry (Protein research). (2) Protein chemistry (Methods for the preparation of pure protein on a large scale.)(A)Conn. State.
- Protein investigations.--Proteins and the lyotropic series. Minn.
- The rôle of hemicelluloses in plant economy. A study of methods for the determination of hemicelluloses. Iowa.

REGULATORY

General Service.

- Analytical service. Minn.
- Chemical service. Mo.
- Analyses and examinations for State Board of Health. Ky.
- State chemist's work. Wash.
- Analyses of miscellaneous samples. Pa.
- Miscellaneous analytical work, including analyses of soils, water and feeds for other departments of the agricultural experiment station, and for farmers. Ariz.
- Routine analysis for other departments. Wyo.

^{1/} See also Animal Husbandry--Animal Nutrition, p. 46; Dairying, p. 102; Economic Entomology--Insecticides and Fumigation, p. 129; Horticulture, p. 263; Plant Pathology--Fungicides, p. 359; Field Crops, p. 137; Plant Physiology, p. 362; Soils, p. 372.

General Service. (Cont.)

Analytical work for residents.

Vt.

Feeding Stuffs Inspection.

Inspection of feeding stuffs. (Law not administered by station.)

Conn. State.

Inspection of feeding stuffs.

N. Y. State.

Feeding stuffs inspection.

Me.

Feeding stuffs inspection.

Vt.

Analysis of feeding stuffs.

N. H.

Feed analysis and investigation.

Tex.

Regulation of manufacture and sale of concentrated commercial feeding stuffs.

Ky.

Fertilizer Inspection.

Fertilizer control.

Mo.

Fertilizer control.

Vt.

Inspection of fertilizers.

Conn. State.

Fertilizer inspection.

Me.

Inspection of commercial fertilizers.

N. Y. State.

Concentrated fertilizers.

N. H.

Analysis of commercial fertilizers.

N. H.

Regulation of manufacture and sale of commercial fertilizers.

Ky.

Analysis of the agricultural limestone and soils of the State, and of miscellaneous materials.

Ky.

Miscellaneous.

Food and drug inspection

Me.

Inspection of foods and drugs. (Law not administered by station.)

Conn. State.

Fungicide and insecticide inspection.

Me.

Inspection of insecticides and fungicides.

Conn. State.

Miscellaneous. (Cont.)

Inspection of insecticides and fungicides. N. Y. State.

The chemistry of insecticides and fungicides.--Physical and chemical properties of fine dusts used as carriers or diluents. N. Y. State.

The chemistry of insecticides and fungicides.--New insecticides and fungicides. N. Y. State.

Dairy products inspection. Me.

Creamery glassware inspection. Me.

Calibration of Babcock glassware. Conn. State.

Testing Babcock and bacteriological glassware in compliance with State laws. N. Y. State.

A G R I C U L T U R A L E C O N O M I C S

FARM MANAGEMENT

General

Study of the competitive status of Massachusetts farm enterprises.	(P)	Mass.
Agricultural adjustments in northern Indiana.	(P)	Ind.
The economic situation of agriculture in the Connecticut Valley.	(P)	Conn. Storrs.
Farm management investigations.		Okla.
Farm organization.		Oreg.
Applied farm organization.		Oreg.
Farm management survey.		Nebr.
Farm management survey.		Mo.
Special farm management studies.	(P)	S. C.
Farm organization and management studies.	(P)	Ill.
Study of successful farms.--Organization and management of successful farms.		Ill.
Study of farm organization in Montana.		Mont.
General plans of farm organization and operation in different sections of the State.		Mo.
Organization and management of successful farmers in Montana.		Mont.
An economic study of the organization of farms in the peanut areas of Alabama with reference to hog production. (P)		Ala.
An economic study of irrigated farming in selected areas of southern Idaho. (P)		Idaho.
Opportunities for profitable adjustments of production in the Spokane Valley to meet present and prospective market demands. (P)		Wash.
Studies in farm organization and management. Farm organization and management survey in Calhoun County.		Iowa.
Studies in farm organization and management. Farm organization and management survey in Bremer and Fayette Counties.		Iowa.

- Studies in farm organization and management. Farm organization and management survey in Polk County. Iowa.
- A study of the organization of farms in the Red River Valley. (P) Minn.
- Farm organization studies in the Gallatin Valley. Mont.
- Organization of successful farms in southeastern Montana. Mont.
- Study of farm organization and management in Northampton County, North Carolina. (P) N. C.
- A study of farm organization in the Jackson Purchase area of western Kentucky. (P) Ky.
- A study of farm organization in the Black Earth area of North Dakota. (P) N. Dak.
- A study of farm organization in the South Dakota wheat belt, of which Brown County is typical. (P) S. Dak.
- A study of farm organization, methods and practices, and cost of production of farm products in a typical black-land cotton-farming area of Texas. (P) Tex.
- Costs and methods of producing farm products in Putnam County, Ohio. (P) Ohio.
- Factors affecting returns from various types of farms and farm practices in the Bitter Root Valley. (P) Mont.
- A continuous farm management study in Anderson County. (P) S. C.
- Investigation of economic and farming conditions in irrigation districts. Calif.
- Agricultural survey of some 500 farms in the general farming region of northwest Florida. (P) Fla.
- Study of the most economical method of farm management to utilize feeds grown under irrigation in central Wyoming in connection with the range livestock industry. Wyo.
- Ranch organization in Great Plains area. (P) S. Dak.
- Farm organization studies on the plains area of northern Montana. Mont.
- Factors affecting organization and operation of Kansas farms (P) Kans.

Farm organization and farm costs.	(P)	Nebr.
A study of farm organization and management through cost accounts.	(P)	Ky.
Farm financial record study.--To study profitable practices and systems of farming, the effect of practices based on experimental data, and farm income under different types of farming.		Ill.
Farming systems: Livestock v. grain farming.		Ohio.
A study of the physical organization of farms. (a) The farm layout.		Minn.
A study of the physical organization of farms. (b) The farmstead arrangement.		Minn.
An economic study of farm buildings, especially dairy barns.		N.Y.Cornell.
Farm management. (a) To place the farm in condition to produce crops for feed or sale.		Idaho.
The cost of building up a run-down farm.		Ind.

Enterprises

General.

Crop and livestock enterprise combinations in relation to farm organization and income on Sun River and Valier irrigation projects.	(P)	Mont.
Crop and livestock enterprise combinations in relation to farm organization and income on the Milk River reclamation project.	(P)	Mont.
Crop and livestock enterprise combinations which will yield the highest net income from available resources on farms in western Montana.	(P)	Mont.

Livestock.

Farming systems: Livestock v. grain farming.		Ohio.
An economic survey of the range livestock industry in Arizona.		Ariz.
A study of the range livestock industry in the northern Great Plains area.	(P)	N. Dak.
Study of ranch organization and operation.		Colo.
A cooperative study of the range livestock industry in the northern Great Plains area.	(P)	Wyo.

Livestock. (Cont.)

- A study of ranch organization, methods and practices, and costs of range livestock production in the Edwards Plateau region of Texas. (P) Tex.
- A study of costs and methods of range livestock production and ranch organization in the northwestern range area of Texas. Tex.
- Place of livestock in the Coastal Plains region of South Carolina. (P) S.C.
- An economic study of the production of cattle on the Mountain Valley ranches. (P) Wyo.
- Type of farming studies. An economic study of the beef cattle industry in Iowa. Iowa.
- A study of the changes that have taken place in the production of beef cattle in Idaho and the reasons for these changes. (P) Idaho.
- The beef cattle ranch organization and management in southeastern Montana. Mont.
- Studies of the economics of cattle production under Nevada range and ranch conditions. (P) Nev.
- Study of the factors affecting the economics of range cattle production in New Mexico. (P) N. Mex.
- A study of the economics of beef cattle farming in Virginia, including the economics of feeding and management in relation to the quality and palatability of the beef produced. (P) Va.
- The economics of beef production. Ind.
- Cost of fattening beef cattle and the relation of the enterprise to the farm business. Nebr.
- Cost and methods of producing beef cattle and sheep on the range. (P) Colo.
- A study of the range sheep industry in Wyoming. (P) Wyo.
- An economic study of the range sheep and goat industries in Arizona. (P) Ariz.
- A study of the changes that have taken place in the production of sheep and wool in Idaho and the reasons for these changes. (P) Idaho.
- Economics of sheep production in New Mexico. (P) N. Mex.

Livestock. (Cont.)

Angora goat enterprise study. (P) Oreg.

Cost of producing pork. Ill.

The family sow.--Cost of maintenance and returns. N. C.

Dairying.

An economic study of dairy farming in Florida. (P) Fla.

Dairy farm management.--(a) To encourage the introduction of dairying as a type of farming for this area of the State.
(b) To determine the best combination of crops to be grown for a dairy herd. (c) To determine the proper number of dairy animals to be maintained on an 80-acre unit of land and their proper management. Idaho.

A study of the changes that have taken place in dairying in Idaho and the reasons for these changes. (P) Idaho.

Economic adjustment of dairying in northern Indiana. Ind.

A study of the economic advantages of dairying in the irrigated and nonirrigated areas of Montana and of the types of farms and farm organizations best adapted for this enterprise. (P) Mont.

Economic studies of dairy farming in New York. N. Y. Cornell.

An economic study of the production, consumption, and disposition of milk and milk products in Richmond territory. (P) Va.

Relation of the composition of rations on New York dairy farms to the economy of milk production. N. Y. Cornell.

The purebred dairy cattle situation. N. Y. Cornell.

Farm business analysis and historical study in Curry and Roosevelt Counties with some enterprise cost studies in butterfat production. (P) N. Mex.

A study of dairy farms and factors affecting economy in dairy production in the dairying regions of Virginia. (P) Va.

Cost of growing dairy cows. Iowa.

Poultry.

Economic study of the poultry industry. N. J.

Economics of Kansas poultry industry. (P) Kans.

Poultry. (Cont.)

Economic studies of poultry farming in New York. N. Y. Cornell.

Poultry farm studies: Detailed farm records and accounts on typical New Hampshire commercial poultry farms in southern New Hampshire. (P) N. H.

Poultry enterprise cost and efficiency study. (P) Oreg.

Economic study of poultry enterprise on cotton farms in Marshall County, Alabama. (P) Ala.

Fruit and Vegetable.

An economic study of the production and marketing of vegetables and fruits with attention to data on other agricultural products which are obtainable from the same records or sources. (P) R. I.

Small fruits and vegetables as supplementary crops on Arkansas farms.--Costs of production and marketing. (P) Ark.

Economic studies of fruit farms in Niagara County. N. Y. Cornell.

Orchard economics. Mich.

The home orchard.--Costs and returns. Mo.

Fruit farm studies. (P) N. H.

Apple orchard survey. Oreg.

Economic study of production and marketing of apples in Rhode Island. (P) R. I.

Economic study of the apple industry. N. J.

An economic study of the apple industry in Virginia. (P) Va.

Economic study of the apple industry in Oxford County and vicinity for 1925 to 1929. (P) Me.

An economic study of apple production in the Yakima and Wenatchee areas. (P) Wash.

Economics of the apple industry in the Cumberland and Shenandoah regions. (1) Preliminary survey of apple orchards in eastern West Virginia. (P) W. Va.

Economics of the apple industry in the Cumberland Valley region. (P) Pa.

Fruits and Vegetables. (Cont.)

- A study of apple orcharding and its relation to the agriculture of the western slope of Colorado. (P) Colo.
- A detailed business analysis study of apple orcharding in the systems of farming of selected areas in Idaho. (P) Idaho.
- Commercial apple enterprise study. (P) Oreg.
- The economic status of the pear industry. Oreg.
- Pear enterprise cost and efficiency study. (P) Oreg.
- Survey of the peach industry. (P) Ark.
- Economic study of the peach industry. N. J.
- An economic study of the blueberry industry in Maine. (P) Me.
- Economics of strawberry production. (P) Oreg.
- Strawberries. (1) Economics of strawberry production. Oreg.
- An economic study of 300 or more potato farms in the Hastings (Florida) area. (P) Fla.
- The potato industry in south Jersey, especially Gloucester County.--Its economic situation. N. J.
- The economics of the production and marketing of Vermont certified seed potatoes. (P) Vt.

Grain and Hay.

- Farming systems: Livestock v. grain farming. Ohio.
- Study of methods, equipment, crew organization, and cost of harvesting grain with the combine in northern Idaho. (P) Idaho.
- An economic and engineering study of corn production methods in Iowa. Iowa.
- A study of the production of market hay in Pennsylvania. (P) Oreg.
- Forage enterprise, cost and efficiency study. (P) Oreg.

Miscellaneous.

The economics of cotton production and marketing.	Ala.
Flax enterprise.	Oreg.
A study of the economics of flax production in Montana. (P)	Mont.
An economic study of flax production.	Mont.
An economic study of bean production.	N. Y. Cornell.
Maple sugar production, costs, and marketing. (P)	Vt.

Types of Farming

Types of farming in Oklahoma. (P)	Okla.
Trends in the type of farming areas as indicated by farm management and organization studies. (P)	N. J.
Types of farming and production areas in Minnesota. (P)	Minn.
Types of farming and production areas in Minnesota.	Minn.
Type of farming studies. General survey of farming types in Iowa.	Iowa.
A study of the types of farm organization best suited to irrigated farms of various sizes and resources in the Turlock irrigation district of California.	Calif.

Miscellaneous

Study of corporation farming.	N. J.
Investigation in cost of land clearing.--To determine the cost of clearing, best methods of preparing newly cleared land for cultivation, and the first crops that can best be raised on the various types of soil.	Minn.
Hay stack and mow measurement.	Minn.
Measurement of hay in stacks.	Mont.
Hay stack measurements investigations.	Calif.

COST OF PRODUCTION

General

Cost of producing farm products under farm conditions.		Mo.
Farm business and cost of production studies with farmers. (P)		S. C.
Cost of production of farm products.		N. J.
A study of the cost of producing farm products on representative farms in central and western Kentucky.		Ky.
Cost accounts on New York farms.		N. Y. Cornell.
Cost of production studies.--Detailed farm records and accounts in Iowa County, Iowa.		Iowa.
Cost accounting investigations.--Detailed records and accounts in Pine County, Minnesota.		Minn.
Detailed farm accounting and farm organization.--Research on 26 irrigated farms in the Greeley area. (P)		Colo.
Detailed farm accounting investigations. (P)		Ill.
Cost accounting studies on Mississippi farms. (P)		Miss.
Farm cost accounting.		Mo.
Farm cost accounts. (P)		W. Va.
Crop cost investigations.		Ala.
Farm management.--(b) To determine the cost of certain crops from the standpoint of man and horse labor expended.		Idaho.
Economic study of Iowa crop production costs.. (P)		Iowa.
Study of economic factors in cost of producing California crops as affecting farm organization and profits. (P)		Calif.
Cost of producing farm crops. (P)		Nebr.
The standard of living on the farm as a factor in the cost of production.		Mo.
Miscellaneous costs and financial records on 50 farms.		N. Dak.

Livestock

Cost of beef cattle production.	Tenn.
Beef cattle.--A study of the cost of producing beef cattle under Mississippi conditions.	Miss.
Cost of producing range cattle. (P)	Nebr.
Beef market requirements in relation to cost of production. (P)	Oreg.
Sheep management: (a) Cost of production.	Idaho.
Cost of raising lambs to marketable age.	N. C.
Cost of production studies. Cost of producing hogs.	Iowa.
Cost accounts of wintering brood sows.	Wash.
Cost of raising pigs to weaning age.	N. C.
Cost of producing pork.	Ill.
Cost of producing pork.	S. C.
The cost of producing pork in Indiana.	Ind.

Dairy Products

Detailed farm accounting investigations on dairy farms.	Ill.
A study of the cost of milk production.	Md.
An economic study of production and distribution of milk in relation to Rhode Island conditions. (P)	R. I.
Cost studies of dairy farming. (P)	Vt.
Cost accounting on Wisconsin farms. The cost of milk production.	Wis.
Cost of milk production in the University herd.	Del.
Dairy experimental farm.--Production costs in dairying.	Utah.
Cost of production and marketing of dairy products in Arkansas(P)	Ark.
Dairy production, costs, processing costs, and marketing procedures. (P)	Vt.
Dairy enterprise cost accounting with herd improvement association members.--To study (1) relation of the dairy enterprise to organization and operation of the farm unit, (2) efficiency of dairy enterprise through medium of enterprise cost records.	Ill.

14 Agricultural Economics--Cost of Production--Dairy Products

Cost of growing heifers from birth to freshening.	Del.
Cost of raising dairy heifers in West Virginia.	W. Va.

Poultry Products

Cost of hatching and rearing broilers.	Mich.
A comparison of the cost of production of Single Comb White Leghorns and Barred Plymouth Rocks.	Minn.
Poultry.--To determine the cost of production of poultry.	Alaska.
Poultry production costs.	N. Y. Cornell.
Cost of production.--Cost of producing market eggs, market poultry, capons, and turkeys.	N. Dak.
Feeding demonstration and cost of egg production.	Ind.
Poultry experiments.--Cost of production of turkeys.	Minn.

Fruits and Vegetables

Farm organization and cost of production survey in typical peach-growing district.	(P)	Colo.
Cost of producing fruits.		Minn.
Cost of producing strawberries.		Utah.
Cost of fruit and vegetable production.		Ill.
A study of costs and methods of storing potatoes in the San Luis Valley.		Colo.
Potato production costs in New Hampshire.	(P)	N. H.
Cost of producing onions.		N. Y. Cornell.

Grain and Hay ^{1/}

A study of the factors which influence the cost of producing cotton, corn, small grain, hay, and other field crops.	(P)	S. C.
Cost of producing corn, wheat, oats, and hay in Medina and Greene Counties, Ohio	(P)	Ohio
Cost of producing wheat on dry farms of Columbia Basin.		Oreg.

^{1/} See also Cost of Production--General, p. 12.

Miscellaneous

- Cotton production and marketing. Okla.
- Cost of irrigation of rice in Arkansas. Ark.
- An economic study of the cost of producing soy beans in Indiana. Ind.
- The cost of horse power, including feed, shoeing, harness depreciation and repair, bedding, and labor for feeding and care. Oreg.

MARKETING

General

- The farmers' marketing attitudes. Minn.
- Study of farmers' markets in New Jersey. N. J.
- Marketing survey of food products in various counties in Pennsylvania. Pa.
- Primary markets for Idaho potatoes, cheese, eggs, beef and mutton, and the extent of competition in these markets represented by the products of other States, 1914-1924. (P) Idaho.
- The development of manufacturing industries in relation to the relative increased demand for agricultural products and the elasticity of that demand. N. Y. Cornell.
- A study of speculation, future trading, and the organized exchanges in Europe. N. Y. Cornell.
- Wholesale market studies. N. Y. Cornell.
- Food consumption by farm and village families. A study of consumers' demand. (P) N. Y. Cornell.

Cost

- Retail prices of food and cost of distributing food. N. Y. Cornell.
- Cost, methods, and practices of marketing livestock. (P) W. Va.
- Cost of marketing corn and wheat in Nebraska by different marketing methods. (P) Nebr.

1/
Cooperative Marketing

- A history of cooperative marketing in New York. N. Y. Cornell.
- Investigation of cooperative marketing and purchasing in Kentucky. (P) Ky.
- A study of cooperative marketing in California. (P) Calif.
- The status and influence of marketing associations in New Mexico. (P) N. Mex.
- Organization and management of marketing agencies. Mo.
- A study of particular cooperative marketing organizations in Tennessee. (P) Tenn.
- The elements of strength and weakness with individual membership in the functioning of typical centralized cooperative marketing associations in Oklahoma. (P) Okla.
- A study of the membership problems of cooperative marketing associations. (P) N. C.
- Organization and management of cooperative warehouses in West Virginia. (1) Development of legal phases, structure and merchandizing functions of the cooperative warehouse. (P) W. Va.
- A study of the major cooperative marketing types in Colorado. (P) Colo.
- Factors affecting success of cooperative livestock shipping associations in Michigan. (P) Mich.
- An intensive study of livestock shipping associations in Illinois. (P) Ill.
- Economic investigation of marketing of Iowa livestock. Economic investigation of cooperative livestock shipping associations in Iowa. Iowa.
- Marketing farm products. A problem of the Minnesota Cooperative Creamery Association. (P) Minn.
- A determination of the efficiency obtained in the operation of Iowa cooperative creameries. Iowa.
- Membership relations of milk marketing associations. N. Y. Cornell.

1/ See also Cooperation, p. 25, and marketing of special commodities.

Transportation

- The transportation of Iowa agricultural products. Iowa.
- Truck v. rail in marketing Illinois livestock; considering actual transportation charges, shrinkage, and general economy. (P) Ill.
- Direct shipments of grain from producing to consuming centers. (P) Ill.
- A study of the transportation of market milk and cream from isolated mountain districts. W. Va.
- A study of the cost of transportation of Florida citrus fruits, with comparative costs from other States and foreign countries. (P) Fla.

Livestock

- Investigation of livestock marketing. (P) Ky.
- Investigating livestock marketing in Wisconsin. (P) Wis.
- Marketing Ohio livestock. (P) Ohio.
- Shipping shrink of livestock. N. Dak.
- Cost, methods, and practices of marketing livestock. (P) W. Va.
- Marketing farm products. Local concentration of livestock in Minnesota. (P) Minn.
- Marketing farm products. Organization for selling livestock in the Central Livestock Market. (P) Minn.
- Marketing Kansas livestock and livestock products. (P) Kans.
- An intensive study of livestock shipping associations in Illinois. (P) Ill.
- Economic investigation of the marketing of Iowa livestock. Study of direct shipping and direct selling of livestock to packers as practiced by cooperative associations and other agencies. Iowa.
- Economic investigation of the marketing of Iowa livestock. Economic investigation of cooperative livestock shipping associations in Iowa. Iowa.
- Factors affecting success of cooperative livestock shipping associations in Michigan. (P) Mich.
- Marketing farm products. (7) Seasonal movements of cattle to market. (P) N. Dak.

Beef market requirements in relation to cost of production.	(P)	Oreg.
Hog marketing investigations.	(P)	Ind.
Lamb marketing investigations.	(P)	Oreg.
The marketing of wool.		N. Y. Cornell.
Marketing western Oregon wool.	(P)	Oreg.
Wool marketing. Variations in the shrinkage of Wyoming wool.	(P)	Wyo.

Dairy Products

Marketing Michigan dairy products.	(P)	Mich.
Cost of production and marketing of dairy products in Arkansas.	(P)	Ark.
Economic investigation of the manufacturing and marketing of Iowa dairy products.		Iowa.
The marketing of milk.	(P)	Pa.
An intensive study of the marketing of milk in Illinois.	(P)	Ill.
Studies in milk marketing. (1) Factors affecting the demand for milk in New York City.	(P)	N. Y. Cornell.
Studies in milk marketing. (2) Economic effects of Western cream on New York City milk market.	(P)	N. Y. Cornell.
Studies in milk marketing. (3) Economic study of milk marketing in Binghamton, N. Y.	(P)	N. Y. Cornell.
Studies in milk marketing. (4) A study of methods and costs of hauling milk from farms to milk plants.	(P)	N. Y. Cornell.
An economic study of the production, consumption, and disposition of milk and milk products in Richmond territory.	(P)	Va.
Studies of milk marketing. (5) Marketing of New York State milk through ice cream.	(P)	N. Y. Cornell.
Practicability of the production and marketing of special grade high quality milk under Vermont farm conditions.	(P)	Vt.
An economic study of production and distribution of milk in relation to Rhode Island conditions.	(P)	R. I.
A study of the producers' methods of disposing of milk and dairy products and the return secured.	(P)	Ind.

Competitive factors influencing supply of market milk and cream in Massachusetts.	(P)	Mass.
An economic study of cream marketing.	(P)	ILL.
A study of the production and marketing of butter in Missouri.	(P)	Mo.
Efficient marketing of butter by Wisconsin cooperative creameries.	(P)	Wis.
Marketing farm products. A problem of the Minnesota Cooperative Creamery Association.	(P)	Minn.
Marketing farm products. Organization and management problems of local creameries in Minnesota.	(P)	Minn.
Study of the costs of operation in the college creamery on market milk, ice cream, and butter.		Conn. Storrs.
Studies in milk marketing. (B) A study of factors influencing the efficiency of operation of country milk plants.	(P)	N.Y. Cornell.
Dairy production costs, processing costs, and marketing procedures.	(P)	Vt.
Cost of pasteurization.		Iowa.

Poultry Products

The marketing of poultry products.	(P)	Pa.
A study of the supply and market distribution in Massachusetts poultry products.	(P)	Mass.
Economic survey of poultry in the city of Raleigh, N. C.		N. C.
Poultry demand in White Mountains district and methods of supplying it.	(P)	N. H.
Broiler market study. Relation of broiler receipts to price of New York market.	(P)	N. H.
Turkeys, growing project. The shrinkage in dressing for market to determine whether it is preferable to market alive or dressed.		N. Dak.
Poultry and eggs marketing.		N. Dak.
The direct marketing of eggs.		S. Dak.

An economic study of the marketing of Iowa poultry and eggs.		Iowa.
A study of the marketing of Delaware farm products.		
(1) (a) The marketing of Delaware eggs.	(P)	Del.
Marketing eggs on quality basis in Indiana.	(P)	Ind.

Grain and Hay

Investigation of terminal grain markets with special reference to the extent storage capacity has been utilized.	(P)	Ill.
Farmers' grain elevator investigations.	(P)	Ill.
Economic investigation of the grain trade of Iowa. Economic investigation of farmers' elevators in Iowa.		Iowa.
Organization and operation methods of farmers' elevators in Montana.	(P)	Mont.
Organization and business practices of farmers' elevators in North Dakota.	(P)	N. Dak.
Marketing farm products.--The federation of local grain elevators.	(P)	Minn.
Problems of elevator management, financing and organization.	(P)	S. Dak.
Marketing organization investigations.--Minnesota elevators.		Minn.
Cost of marketing corn and wheat in Nebraska by different marketing methods.	(P)	Nebr.
Economic investigation of the corn trade of Iowa with special reference to corn supluses.	(P)	Iowa.
Marketing of Kansas wheat.	(P)	Kans.
Wheat marketing investigations.	(P)	Ill.
Grain dockage investigations. Examination and mechanical analyses of wheat and screenings.		Minn.
Seed marketing investigations.	(P)	Ill.
Red top marketing investigations.	(P)	Ill.
The marketing of hay in terminal and country markets and studies of the adjustment in farming to meet the hay marketing situation.	(P)	N. Y. Cornell.

A study of the operating costs of feed stores and their effect on retail prices of feed and grain. (P) N. H.

Operation of retail feed stores and feed prices. (P) N. Y. Cornell.

Feeding stuffs.--Distribution costs in Vermont. (P) Vt.

Fruits and Vegetables

An economic study of the production and marketing of vegetables and fruits with attention to data on other agricultural products which are obtainable from the same records or sources. (P) R.I.

Small fruits and vegetables as supplementary crops on Arkansas farms.--Costs of production and marketing. (P) Ark.

Marketing farm products.--Margins on locally-grown fruits and vegetables in the St. Paul market. (P) Minn.

Marketing Indiana fruits and vegetables.--Grades and standards. (P) Ind.

Losses due to spoilage of fruits and vegetables during the marketing process. (P) Ill.

An economic survey of the receipts and distribution of the perishable fruit and vegetable supply of Binghamton, N. Y. N.Y. Cornell.

The marketing of California sweet potatoes, Irish potatoes, cantaloups, and watermelons. Calif.

Economics of the apple industry in the Cumberland-Shenandoah region. (2) A study of markets, costs, and methods of marketing apples in the eastern part of West Virginia. (P) W. Va.

The marketing of apples. N. Y. Cornell.

Studies in marketing Utah's apples. (P) Utah.

Economic study of production and marketing of apples in Rhode Island. (P) R. I.

The marketing of Ohio apples. (P) Ohio.

A study of the supply and market outlets for Montana apples as they affect the possibilities of orcharding in the Bitter Root and Flathead valleys of Montana. (P) Mont.

Study of the market outlets for Massachusetts (and New England) apples.--Demand and competition (a) on the domestic market, (b) on foreign markets. (P) Mass.

The consumer demand for apples.	(P)	Mass.
Marketing Calhoun County apples.	(P)	Ill.
The marketing of Idaho apples.	(P)	Idaho.
A study of the organization and operation of apple marketing agencies in the State of Washington.	(P)	Wash.
A study of market values of Georgia peaches differentiated by standard grades and sizes.	(P)	Ga.
Marketing Illinois peaches.	(P)	Ill.
Metropolitan New York demand for peaches.	(P)	N. J.
Handling and packing citrus fruits.	(P)	Fla.
The canning of fresh and dried prunes with special reference to increasing the market for Oregon prunes.	(P)	Oreg.
Standardization of dried prunes.	(P)	Oreg.
Marketing small fruits.	(P)	Mo.
Vegetable demand in White Mountains district and methods of supplying it.	(P)	N. H.
Factors influencing the marketing of winter vegetables in the Lower Rio Grande Valley of Texas.	(P)	Tex.
The marketing of potatoes and other New York State produce in New York City, Philadelphia, Pittsburgh, and Cleveland.	(P)	N. Y. Cornell.
The marketing of New York potatoes.		N. Y. Cornell.
The economics of the production and marketing of Vermont certified seed potatoes.	(P)	Vt.
A study of the marketing of sweet potatoes.	(P)	Del.
The marketing of California sweet potatoes, Irish potatoes, cantaloupes, and watermelons.		Calif.
A study of the factors involved in the production, marketing, and canning of tomatoes.		Ark.
The production and marketing of beans in New York and the competition of western beans with the New York crops.		N. Y. Cornell.

An economic study of the production and marketing of green peas for table use.--Price of green peas for table use.		N. Y. Cornell.
Business management of canning factories.		N. Y. Cornell.
Marketing Michigan celery.	(P)	Mich.
The production and marketing of lettuce.		N. Y. Cornell.
Marketing truck crops.	(P)	Mo.

Cotton

Cotton marketing study.	(P)	S. C.
Local cotton marketing study.	(P)	Tex.
The economics of cotton production and marketing.		Ala.
Cotton production and marketing.		Okla.
A study of local cotton marketing practices.	(P)	Ga.
Relation of cotton grade and staple to prices paid Alabama farmers.	(P)	Ala.
Practices and costs of cotton gins operated in a selected section of North Carolina.		N. C.

Miscellaneous

Investigation of the roadside market.	(P)	Mich.
The marketing of honey.		N. Y. Cornell.
Maple sugar production, costs, and marketing.	(P)	Vt.
Soy bean marketing investigations.	(P)	Ill.
Investigations of the marketing of tobacco.	(P)	Ky.

PRICES

Study of prices of farm products.	(P)	N. Y. Cornell.
Price of farm products.	(P)	Minn.
Prices of Michigan farm products.	(P)	Mich.
Investigation of prices of Illinois farm products.	(P)	Ill.

Index number of prices prior to 1800.		N. Y. Cornell.
Reactions in production to changes in prices and market conditions.	(P)	Mo.
Study of prices in relation to farm production.	(P)	Va.
The correlation between South Dakota farm prices and production.	(P)	S. Dak.
Farm prices in North Dakota in relation to production and surplus.	(P)	N. Dak.
Economic studies in price, volume of production, and purchasing power of farm products.		Nebr.
Measuring purchasing power of farmers.	(P)	S. C.
Relation of rainfall and acreage variations to the production and purchasing power of farm and city wholesale prices of corn, oats, wheat, hay, cotton, cabbage, etc.		N. Y. Cornell.
Relationships of supply and price.		N. Y. Cornell.
Elasticity of supply of farm products.		Minn.
Effects of farm prices on retail prices and vice versa.		N. Y. Cornell.
Factors affecting local prices.	(P)	Mo.
Market price investigations.		Minn.
Market price quotations.		Minn.
Elasticity of supply of Vermont dairy products.	(P)	Vt.
Effect of price and other factors on the rate of milk production.		N. Y. Cornell.
Factors affecting the price of Missouri apples.		Mo.
A statistical analysis of the factors affecting Idaho late potato prices.	(P)	Idaho.
A study of feed prices.		N. Y. Cornell.
Factors affecting the price of California watermelons.	(P)	Calif.
A study of the prices of eggs and poultry in Massachusetts.	(P)	Mass.

AGRICULTURAL STATISTICS

- Production, supply and demand study. (P) S. C.
- Statistics of fruit production.--To make available data covering fruit production in Porto Rico, the extent of the planting and annual yield. Porto Rico.
- A study of the agricultural statistics of California: Beef cattle (P) Calif.
- A study of the agricultural statistics of California: Sheep and wool. (P) Calif.
- A study of the agricultural statistics of California: Apples. (P) Calif.
- A study of the agricultural statistics of California: Pears. (P) Calif.
- A study of the agricultural statistics of California: Plums. (P) Calif.
- A study of the agricultural statistics of California: Prunes. (P) Calif.
- A study of the agricultural statistics of California: Olives. (P) Calif.
- A study of the agricultural statistics of California: Walnuts. (P) Calif.
- A study of the agricultural statistics of California: Water-melons. (P) Calif.

1/
FARM INCOME

- Farmers' incomes in Minnesota. Minn.
- A study of labor income on West Virginia farms. W. Va.

2/
COOPERATION

- Cooperative agricultural organizations. Nebr.
- Studies of factors significant in the conduct of farmers' business organizations. (1) Farmers' cooperation in New Jersey. (P) N. J.
- Accounting systems for retail feed stores and cooperative associations. N. Y. Cornell.

1/ See also Farm Taxation, p. 27.

2/ See also Cooperative Marketing, p. 16.

Financing cooperative associations.		N. Y. Cornell.
Investigation of the attitude among South Carolina farmers toward cooperative organizations.	(P)	S. C.
The organization of the farmers' supply service. Cooperative oil filling stations.		Minn.
Community irrigation movements in California.		Calif.

AGRICULTURAL FINANCE

A study of farm credit.		N. Y. Cornell.
Farm credit.	(P)	Ark.
Agricultural credit problems in North Carolina.		N. C.
An economic study of the agricultural credit situation in New Jersey.		N. J.
Agricultural credit.--The present agricultural credit situation in Minnesota.	(P)	Minn.
A study of agricultural credit and finance in Kentucky.	(P)	Ky.
Investigation of agricultural credit in Iowa.		Iowa.
A study of the agricultural credit problems of Georgia.	(P)	Ga.
A study of the credit needs of South Dakota agriculture and of the credit agencies serving it.	(P)	S. Dak.
Livestock and agricultural credit in eastern Montana.		Mont.
Agricultural credit.--Agricultural credit corporations.		Minn.
The comparative advantages of various forms of intermediate and long-time credit.	(P)	S. C.
Financing the settler through the early stages of settlement.		Wis.
Investigations into foreclosures of farms since 1919.	(P)	S. C.

1/
FARM TAXATION

Problems in taxation	(P)	S. C.
Taxation problems of agriculture.	(P)	S. Dak.
A study of taxation in Pennsylvania.	(P)	Pa.
Farm taxation in Michigan.	(P)	Mich.
Farm taxation.	(P)	Ark.
Taxation problems of agriculture.		Mo.
Taxation problems of agriculture.	(P)	Colo.
Taxation as it affects agriculture.	(P)	Okla.
Taxation in its relation to agriculture.	(P)	Minn.
The trend of farm taxation in Delaware.	(P)	Del.
Rural and urban taxation in Virginia.	(P)	Va.
Taxation of New York farms.		N. Y. Cornell.
A study in the relation of assessed values to sale values of real properties in Oregon.	(P)	Oreg.
An index number of farm taxes in New York, and its relation to general prices, farm prices, wages, etc.		N. Y. Cornell.
Relation of taxes to farm land values and farm income in Ohio.	(P)	Ohio.
Relation of income to taxes.		N. Y. Cornell
A study of the New York State taxation system.		N. Y. Cornell.
A study of the method of collection of the general property tax.		N. Y. Cornell.
Taxation on forest and cut-over lands in northern Wisconsin.	(P)	Wis.
Forest taxation.		Mich.
Cost of large v. small county boards of supervisors.		N. Y. Cornell.

1/ See also Land Economics, p. 28.

1/
LAND ECONOMICS

The economic significance of soil type.	(P)	Conn. Storrs.
Land utilization and farm development studies.	(P)	Nebr.
Financing the settler through the early stages of settlement.		Wis.
A study of land utilization in northwestern Colorado.	(P)	Colo.
Studies of land income, land taxation, land utilization, land acquisition and land classification, and other land problems.	(P)	Kans.
Land prices and cycles.	(P)	S. C.
The appraisal of farm land.		N. Y. Cornell.
What soil characters are factors in determining agronomic value or utilization of land.	(P)	Conn. State.
Methods of land valuation with especial reference to Minnesota.		Minn.
A study of the factors affecting land value in California.	(P)	Calif.
A study of agricultural land problems in Iowa. A study of Iowa farm land values.		Iowa.
Nebraska farm land prices.	(P)	Nebr.
The agricultural and market value of Missouri farm lands.		Mo.
Market value of Michigan farms as indicated by sales.	(P)	Mich.
Relation of taxes to farm land values and farm income in Ohio.	(P)	Ohio.
A study of the relationship of land values to crop prices, tenancy and rate of taxation.		N. C.
Studies and classification of lands that are submarginal for crop production.		N. Y. Cornell.
Land problems: A study of the physical and productive organization of tenant-operated and owner-operated farms.		Ill.
Investigations of agricultural land tenure and transfer.	(P)	Ill.
Land ownership and tenancy.		Ky.
A study of farm tenancy in Pennsylvania and of forms of leases and contracts.	(P)	Pa.
A study of agricultural land problems in Iowa. Farm tenancy in Iowa.		Iowa.

- Farm tenancy in Indiana. Ind.
- A study of the methods and results of renting farms in New York. N. Y. Cornell.
- Land tenure in Missouri. Mo.
- A study of the social and economic effect occurring as a result of marked lowering of land values to a group of farm families who purchased farm lands at or near peak prices. (P) Ky.
- Methods employed by private agencies in land settlement. Minn.

TRADE AREAS

- Requirements of consumers' areas, especially Laramie and Casper. (P) Wyo.
- Lansing food supply.--Lansing trade area. (P) Mich.
- The determination of amount of food products received in the New England consuming area. (P) Mass.
- An analysis of the Columbia trade area showing the influence of various economic factors on the shape and size of this trade area. Mo.
- Supply methods of marketing and consumption of food in West Virginia cities and agricultural production in nearby territory. (P) W. Va.
- Study of local market conditions and requirements in an attempt to more nearly adjust agricultural production to meet these conditions and requirements. (P) Me.
- Economic development of the New York milk shed. N. Y. Cornell.

FARM LABOR

- Distribution of farm labor. Mo.
- Utilization of labor on the farm. Mo.
- Study of efficiency in the use of labor by farmers. (P) Pa.
- Housing in relation to farm labor turnover. (P) Md.

MISCELLANEOUS

- History of agriculture in New Jersey.--Educational and social developments prior to 1880. N. J.
- History of agriculture in New Jersey.--Economic influence and development. N. J.

- History of cattle industry in eastern Montana. Mont.
- Shifts in agricultural production. (P) Minn.
- Trend of agriculture in North Dakota by counties and types of farming. (P) N. Dak.
- The agricultural surplus. Variations in supply and returns for corn, oats, potatoes, cotton, and wheat. Minn.
- Economics of the canning industry in Maryland. (P) Md.
- A study of general farmers' organizations in Illinois. (P) Ill.
- The relation of agriculture to the fertilizer industry. N. Y. Cornell.
- A study of the causes and effects of the decreasing number of farms in North Dakota. (P) N. Dak.
- Tenure, economic status, and progress of farmers as related to farm business organization and methods, their past economic history, and the social and educational welfare of family and community. (P) Okla.
- Economic problems concerned with highways. N. Y. Cornell.

MACHINERY

General.

Farm equipment.	Ala.
Farm machinery survey.	Nebr.
Farm machinery survey.	Ark.
Standardization of farm machinery.	Iowa.
Experimental methods and machinery investigations.--Devising new machines for use in investigational work and for general use.	Iowa.

Tractors.

Tractor testing.	Nebr.
Investigations of farm tractors.	Minn.
Use of tractors.	Iowa.
Power machinery.--To study the operation and cost, efficiency, and adaptability of stationary engines, tractors, and accessories.	Mich.
A census of tractors and threshers in Arkansas County.	Ark.
A study to determine the fundamental factors influencing traction of wheel tractors. (A)	Ala.
Soil traction.--A study of the traction obtained by the interaction of traction members of field tractors and the soil.	Calif.
Relation of dust to motor operation.	Idaho.
Studies of air cleaners.	Calif.
Lubrication oils for internal combustion engines.	N. Y. Cornell.
Bearing wear as affected by the character and condition of the lubricant.	Calif.

Tractor Economics.

An economic study of the use of tractors and trucks in New York.	N. Y. Cornell.
An economic analysis of the use of tractors on farms in various parts of North Dakota. (P)	N. Dak.

Tractor Economics. (Cont.)

Economic study of tractors. Mont.

An economic study of the use of tractors and trucks in
New York. N. Y. Cornell.

Tractor and other farm equipment costs on the farm. Mo.

Horse Motors.

A study of the horse as a motor. Iowa.

Tandem horse hitches. Ill.

Farm machinery. Horse pulling contests. N. Dak.

Tillage Machinery.

Relation of the dynamic properties of soil to the elements
of tillage implement design. (P) Ala.

A study of the dynamics of field machines. Calif.

Ploughshare wearing tests. Calif.

Drainage investigations. (e) The development of a marsh plow
for breaking new land. Wis.

Soil tilling machine. Ind.

A study of deficiencies in agricultural implements applied to
sugar cane culture. La.

Soil investigations. (d) Effect of cultipacking upon yield
of grains. Idaho.

Study of listed corn cultivation. Mont.

Draft of Machinery.

Draft of farm implements. Farm power. Mont.

Investigations to determine the draft of various farm
implements and the cost of different operations with them. Mo.

Investigations to determine the draft of farm implements and
the effect of the adjustment of the implement and the line of
draft on the draft. Iowa.

Draft of Machinery. (Cont.)

A study of the draft of plows in various soil types and the effect of liming upon the draft of plows. N. C.

Plow draft studies. Ill.

A study of factors influencing the draft of farm wagons. N. C.

Power Requirements.

A study of the power and labor factors involved in general farming in Pennsylvania and how they may be advantageously manipulated by engineering procedure. (P) Pa.

Farm machinery.--To study the power requirements of farm implements and development of new machinery and homemade appliances. Mich.

Farm power studies.--The power requirements on farms, cost of farm power, and efficient ways of supplying necessary power on farms of different sizes. Ill.

Farm power study. Ind.

Power requirements for belt machinery. The design and accessories of silo fillers, threshing machines and other belt-driven machinery as affecting power requirements. Speed as a factor of efficiency. Wis.

Use of mechanical power in the production of corn. Ill.

An economic and engineering study of corn production methods in Iowa. Iowa.

The development and improvement of labor-saving machinery for vegetable gardening. (P) Pa.

A study of utilization of motor power and motor power implements in growing and harvesting soy beans. La.

Operation and improvement of farm power machinery. N. Y. Cornell.

Harvesters and Threshers.

Combine harvester studies. Nebr.

Adapting combine to spring wheat sections. Mont.

A study of the adaptability of the combine harvester thresher and the small threshing machine for Indiana farms. Ind.

Study of methods, equipment, crew organization, and cost of harvesting grain with the combine in northern Idaho. (P) Idaho.

Harvesters and Threshers. (Cont.)

Threshing studies.--(1) Efficiency of grain separators. (2) Relative merits of large and small threshing rings. (3) Efficiency of custom and cooperatively owned outfits. (4) To investigate threshing rings. (5) To determine the efficiency of combine-harvester-threshers. (6) To determine the power requirements for threshing.

Ill.

Farm machinery. Harvesting threshing - Combines.

N. Dak.

A study of equipment for handling grain in bulk.

Calif.

Static electricity as a probable cause of smut explosions and threshing machine fires.

Wash.

Harvesting studies and investigations.

Ill.

Study of sweet clover harvesters.

Okla.

Hay making machines.--Methods and machinery to reduce the labor of making and handling hay.

Wis.

Seeding Machinery.

A study of the rate-of-seeding characteristics of treated grain in drills to determine mechanical conditions necessary therein to permit specified rates of seeding.

Calif.

Development of a more efficient seeder for small seed. (P)

Ga.

Testing best methods of seeding winter wheat, especially the use of the Duckfoot cultivator and furrow drill.

Wyo.

A study of the cotton planter dropping device.

Tex.

Crop Drying Equipment.

Artificial curing of hay.

La.

Artificial hay and grain drying.

Wis.

Stack and grain drier.

Ind.

Drying combine grain.

Mont.

Farm structures. Corn dryers.

N. Dak.

Artificially curing forage - its economic possibility.

N. J.

Shrinkage, storage, and artificial drying of soft corn, seed corn, small grains, soy beans, and hay crops.

Ill.

An experimental study of equipment for drying and curing of deciduous fruits on a commercial scale.

Calif.

Dairy Machinery.

- Experiments in the operation of dairy machinery and equipment. Calif.
- A study of mechanical refrigerators for use on dairy farms. N. Y. State.
- Farm dairy refrigeration studies, with special reference to initial cost, cost of operation, and upkeep. N. C.
- Refrigerating and mechanical factors involved in freezing ice cream. Mass.
- A study of milk strainers for use on the farm. N. Y. State.

Fertilizer Machinery.

- An investigation of limestone and fertilizer spreaders. Iowa.
- Marl handling.--To make marl available for agricultural use. Mich.

Corn Borer Machinery.

- Study adaptation, design and application of machinery to corn borer control. Ill.
- Corn borer control.--The right kind of equipment for the low cutting of corn and the covering of stalks and trash to combat the borer. Wis.

Miscellaneous.

- Feed grinder test.--Comparison of the hammer mill with other types. Wis.
- Seed cleaning investigations.--Combinations of screens for cleaning red clover, alfalfa, and timothy seed for different makes of fanning mills. Ill.
- Farm machinery.--Bin ventilation. N. Dak.
- Apple-washing machinery. Colo.
- A study of the efficiency of orchard heaters. Calif.

STRUCTURES

General.

- Farm buildings.--To study the types of frame and planning of farm buildings from an economic and sanitary standpoint. Mich.

General. (Cont.)

- Farm buildings.--To study farm buildings for greatest efficiency in plan, sanitation, economy of construction and appearance, and to develop plans for same. Ill.
- Farm structures. (b) Relation of overhead in farm buildings to production cost. Wis.
- The design of farm buildings and equipment to meet the needs and conditions of the State. Mo.
- Farm structures. Iowa.
- Investigations of farm buildings. Minn.
- Practical farm building plans for West Virginia. W. Va.
- Farm building plans. Ark.
- Basic factors in farm home planning. (P) Ark.

Ventilation.

- Farm building ventilation. Minn.
- An investigation into the efficiency of various barn ventilating systems. Iowa.
- Farm structures. (a) Forced ventilation and moisture control. Wis.
- Dairy barn ventilation. N. Y. Cornell.
- Poultry house ventilation and operation. N. Y. Cornell.
- Ventilation of poultry houses. Ind.
- Poultry house ventilation and construction. Nebr.
- Ventilation of poultry houses. S. Dak.
- Study of temperature and humidity conditions in certain poultry houses on the Purdue Experiment Station Poultry Farm. Ind.
- Air requirements of poultry.--A study of ventilation of different types of poultry houses. Iowa.

Dairy Structures. (See also Ventilation)

- Dairy barns and equipment. Iowa.
- An economic study of farm buildings, especially dairy barns. N. Y. Cornell.

Dairy Structures. (Cont.)

- Farm structures.--Concrete and masonry - Dairy barns. N. Dak.
- A study of sizes and types of structures and building equipment for California dairy farms. Calif.
- Investigations of dairy barn floors. Iowa.
- Temperature investigations of floors of dairy barns. Kans.
- Types of milk houses for dairy farms.. N. Y. Cornell.
- The organization and construction of creameries. Iowa.

Silos.

- Silo construction.--Silo capacity. Iowa.
- Silo construction.--Treatment to make masonry silo walls impervious. Iowa.
- Farm structures.--Trench silos. N. Dak.
- Weight of sunflower silage. Mont.

Poultry Structures. (See also Ventilation, p. 36.)

- Poultry houses and equipment. Ill.
- A study of poultry housing. Calif.
- Investigations in poultry husbandry.--Studies in house construction. Minn.
- Testing the value of straw and other insulating materials in the construction of laying houses. Wyo.

Swine Structures.

- Hog houses and equipment. Ill.
- Community or centralized hog house construction. Iowa.
- Equipment for livestock feeding and management. Self-feeders for swine. Specifications and construction. Iowa.

Storages.

- The harvesting and storage of ice. Iowa.
- Investigation of apple storage houses. Mass.

Storages. (Cont.)

Storage houses for potatoes. Mich.

Miscellaneous.

Equipment for livestock feeding and management, feed bunks, alfalfa racks, mixing box, dipping tank, combination sheep rack, and other miscellaneous equipment. Iowa.

Farm structures. Roughage handling.--Roll-in for barns. N. Dak.

Farm structures. Bee housing. N. Dak.

Rural home design for the warm interior valleys of California. Calif.

Spontaneous combustion. Mich.

Use of carbon dioxide as a fire extinguisher. Colo.

IRRIGATION

Water Resources.

Relationship of stream discharge to precipitation, with special reference to forecasting the supply of water for irrigation from seasonal surveys of snow cover on mountain watersheds. (P) Utah.

Water resources and irrigation in Cochise County. Ariz.

Ground water development. (P) Utah.

Development of ground water for irrigation. Use of early and late water in irrigation. Utah.

Ground water development for irrigation. Utah.

Study of ground water supplies. (A) Ariz.

Ground water studies in the Middle Rio Grande Valley, New Mexico. N. Mex.

Ground water studies in the Mesilla Valley, New Mexico. N. Mex.

Pumping for irrigation in California. Calif.

Studies in the reclamation of certain desert soils under irrigation from artesian wells in the Las Vegas Valley of southern Nevada. (P) Nev.

Duty of Water.

- Duty of water investigations.--Determination of the economic duty of water for leading irrigated sections of the State. Oreg.
- Duty of water. Factors affecting the movement of soil moisture. (P) Mont.
- Duty of water for selected crops. Idaho.
- Irrigation experiments. (1) Duty of water for major crops with varying depths of application and applications at different intervals. Oreg.
- Economic field duty of water in southern California. Calif.
- Duty of water in irrigation in Sacramento Valley. Calif.
- The relation between water evaporation and duty of water in irrigation. (A) Ariz.

Irrigation Practice.

- Use of irrigation water. Wash.
- Conditions governing the application of irrigation water. (P) Idaho.
- Irrigation experiments. (2) Investigations to determine best length and width of borders for "border irrigation." Oreg.
- Experiments in distribution of water and improvement of irrigation practice. (1) Check furrow and strip border method, kind of soils, width and length of border or furrows, preparation cost, irrigation head, and moisture stored. Oreg.
- Experiments in distribution of water and improvement of irrigation practice. (2) Soil moisture capacity for the root zone as a guide to time and amount of irrigation. Oreg.
- Principles of soil moisture in relation to irrigation. Calif.
- Movement of water in soils. Mont.

Water Losses.

- Seepage losses from irrigation canals and ditches. Mont.
- Run-off water losses in relation to crop production. (P) Tex.

Miscellaneous.

- Value of supplemental irrigation in the Willamette Valley.--Water supply, wells, pumping units, distributaries, and most profitable amount of irrigation. Oreg.

Miscellaneous. (Cont.)

Measurement of water.--With improved Venturi flume.	Colo.
Studies on an inverted sand filter for desilting turbid waters for irrigation purposes. (P)	Ariz.
Community irrigation movements in California.	Calif.
Orchard irrigation studies at Davis.	Calif.
Moisture requirements of deciduous orchards.	Calif.
Irrigation studies with the Delhi Muir peach orchard.	Calif.

DRAINAGE

General.

Drainage studies.	Fla.
Drainage.--To improve drainage practice and agricultural conditions.	Mich.
Drainage system. Drainage investigations.	Mont.
Drainage districts.--Gathering of field data relative to several districts in the Arkansas and San Luis Valleys.	Colo.
Drainage survey of California.	Calif.
Tile drainage of sugar cane or sugar beet lands. (P)	La .
Drainage survey of rice lands.	Calif.

Influence of Drainage.

Drainage and improvement of wet lands. (3) Drainage of "grease wood lands" to remove alkali and management to restore favorable soil structure of such lands.	Oreg.
Factors underlying the economic use of water in irrigation. Drainage and reclamation of water-logged, alkali, and overflow lands. (P)	Idaho.
The influence of tile and open drainage.--The effect upon crop production of surface and tile drainage.	Minn.
Drainage investigations. (d) Studies in subsoil as a factor in drainage design.	Wis.
A study of the influence of tile drainage on soil temperature within the root zone of standard crops.	Minn.

Influence of Drainage. (Cont.)

- Investigation of the drainage requirements of swamp forest growth, of the proper type of drainage system and of the methods and costs of its installation and operation. Minn.
- Drainage investigations. (e) Effect of drainage on forests. Wis.
- Effect of drain tile on ground water in "Tight Soils." Ill.
- Drainage and improvement of wet lands. (1) Study of water table and outflow on "white land" and effect of clover, lime, gypsum, and manure on percolation, rate and composition. (1) Plats. (2) Lysimeters. (3) Pots. Oreg.
- Drainage investigations. (a) Settling of peat after drainage. Wis.
- Drainage and water control investigation on peat lands. Minn.
- Drainage and improvement of wet lands. (2) Drainage of tide lands. Oreg.
- Drainage of land by pumping sump or well. Calif.

Drainage Methods.

- Methods and costs of drainage installation, and correlation of land and crop values with cost of drainage. Minn.
- Experiments to determine the proper size, depth and spacing of tile drains for Missouri soils. Mo.
- Determination of the relative efficiency of differing depths and spacing of drainage lines. Minn.
- The influence of tile and open drainage.--Study of various kinds of tile, including size, depth, and distance between tile lines. Minn.
- Investigations in costs and methods of constructing open ditches with explosives under varying soil and moisture conditions. Minn.
- Land clearing and drainage. (2) Drainage and reclamation of tide lands, especially investigations as to drainage systems. Oreg.

SANITATION

Home Ventilation and Heating. (See also Structures--Ventilation, p.36.)

- Humidifying air in buildings.--Installation of humidifiers in hot air furnaces in private buildings. Colo.

Home Ventilation and Heating. (Cont.)

Heating and ventilating of homes.--Including installation and operating data.

Minn.

Prevention of frost on glass windows.

S. Dak.

Water Supply.

Masonry water tanks.

Iowa.

Treatment of alkali and other waters for domestic use.

Colo.

Study of the use of electric power on Nebraska farms. (b)
Automatic water systems. (P)

Nebr.

Efficiency tests of electric-driven water systems.

Ill.

Efficiency of hydraulic rams.

Mont.

A study of the flora of reservoirs for city water supply.

N. C.

Sewage Disposal.

Sewage disposal.

Mont.

Sewage disposal.

Mich.

Farm sewage disposal.

Minn.

Sewage disposal for farm and isolated homes.

Ill.

Rural sanitation.--The best method of handling sewage on the farm and a study of septic tanks installed, to determine rate of sludge accumulation, efficiency of drainage systems.

Calif.

An investigation of sanitary conditions on farms and experiments to determine the best types of sanitary equipment.

Mo.

Biology of sewage disposal.

N. J.

ELECTRIFICATION

General.

An economic study of the use of electricity on New York farms.

N. Y. Cornell.

The availability of electric power on the farm.

Wis.

A study of the uses of electricity in agriculture.

Calif.

The relation of electricity to agriculture.

Idaho.

General. (Cont.)

Use of electricity in agriculture.		Ill.
Relation of electricity to agriculture.		Ind.
The use of electricity on the farm.		Mich.
Relation of electricity to agriculture.		Mo.
Utilization of electricity in agriculture.		Minn.
The relation of electricity to agriculture.		N. H.
Relation of electricity to agriculture.	(P)	S. Dak.
The use of electricity in agriculture.		Wash.
The application of electricity in the farm home.	(P)	Iowa.

Wind Electricity.

Wind power electric lighting plants.		Minn.
Study of wind-driven electric plants for farm use.		Nebr.
Investigation of the electric lighting by wind power.		Iowa.

Motor Belt Work.

Use of electricity. (1) Hoisting Hay. (2) Elevating grain. (3) Elevating shavings. (4) Grinding grain.		Oreg.
Study of the use of electric power on Nebraska farms. (a)		
Adaptation of small electric motors to farm uses.	(P)	Nebr.

Miscellaneous.

Developing a corn germinator for the farm.		Ill.
Study of the use of electric power on Nebraska farms. (d)		
Electrically operated refrigerators for farm use.	(P)	Nebr.
Study of the use of electric power on Nebraska farms. (c)		
Study of small unit plants for farm use.	(P)	Nebr.
Hydroelectric plants.		Minn.

MATERIALS

Fencing Materials.

Farm fencing.--A study of costs, durability and suitability of various materials.	Calif.
Timber preservation.--Preservative treatment of fence posts.	Iowa.
Preservative treatment of fence posts.	Minn.
Comparison of fence posts.--Steel and wood.	Minn.
A study of the methods of prolonging the service of wood fence posts.	Mo.
Fence post treatment.	Mont.
Durability of posts and methods of fencing in vineyards.	Ark.
Period required to secure penetration of creosote oil into fence posts of common species of wood.	N. Y. Cornell.
Relative durability of creosoted fence posts treated by (1) brushing, (2) dipping, and (3) open-tank method.	N. Y. Cornell.

Drain Tile.

Investigation of causes of failures of agricultural drain tile, the means of obviating such failures and mapping areas where extra precautions are necessary.	Minn.
Comparative value of vitrified clay and concrete pipe for sewers and agricultural drains. (P)	Miss.
Drainage investigations. (b) Durability of concrete tile.	Wis.

Roofing Materials.

Timber preservation. Preservative treatment of shingles.	Iowa.
Prepared roofing.	Iowa.
Shingle nail experiment.--Lasting qualities of Western Red Cedar shingles fastened with different kinds of nails.	Pa.
Shingle experiment.	Pa.

Miscellaneous.

Farm structures. Rammed earth walls.	N. Dak.
Concrete construction for farm building purposes.	Iowa.
Antitermite wall tests.	Ill.

Miscellaneous. (Cont.)

Harvesting corn stover for industrial purposes.	Iowa.
Road materials of Colorado.	Colo.
Subgrade investigations for the hard surfaced roads of Colorado.	Colo.

LAND CLEARING

Land clearing investigations.--Use of explosives for agriculture.	Wis.
Land clearing and drainage. (1) Methods of clearing logged-off hill land and tide land.	Oreg.
Method of clearing cut-over lands.	Mo.
Studies in stoning land. Studies of stone exposure in cultivated or cropped fields.	Minn.
Studies in stoning land. Studies in frost and erosion in exposing stones.	Minn.
Studies in stoning land. The relative efficiency of removing stone before and after breaking of virgin land.	Minn.
Land clearing investigations.	Minn.
Investigations in land clearing methods and equipment.	Minn.
Land clearing.	Mich.
Investigations in cost of land clearing.--To determine the cost of clearing, best methods of preparing newly cleared land for cultivation, and the first crops that can best be raised on the various types of soil.	Minn.
A study of equipment and methods of removing and ridding land of stumps.	Calif.
Land clearing with goats.	Oreg.

SOIL EROSION

Studies of soil erosion.	Ind.
Control of soil erosion.	Ky.
A study of terraces in Oklahoma.	(P) Okla.
Soil erosion in Nebraska.	Nebr.
Mechanical methods for checking soil washing.	Ill.

GENERAL

- Effect of certain climatic conditions on livestock. (R) Ga.
 Panquitch livestock farm. Utah.
 Temperature range in normal cattle. Mont.

1/
ANIMAL NUTRITION

Nutritive Properties of Feeds

- Feeding concentrates alone to ruminants. Mich.
 Food requirements for dairy cattle. The deficiencies of milk
 as an exclusive diet for calves. Minn.
 Pig feeding investigations. (S) Protein and vitamin deficiencies
 of barley for pigs. Oreg.
 The effect of organic nutrients from single v. mixed plant
 sources on animal growth and reproduction. (A) Wis.
 A comparison of the productive values of grain mixtures of
 different protein content. N. Y. Cornell.
 Investigation of the nutritive value of feeds. Studies of
 (a) the productive values, (b) the proximate composition,
 and (c) the digestibility of the proximate constituents
 of feeding stuffs. (A) Tex.
 The effect of processing upon the nutritive value of foodstuffs. N. J.
 A study of the digestibility of ground roughage. Pa.
 Phospholipins of seeds. (A) Okla.
 Revegetation and maintenance of California foothill range lands.
 (c) Nutritive qualities of forage types. Calif.
 Cottonseed meal studies. (2) Effect of deficiencies of meals
 prepared from high oil-bearing seeds on health and growth of
 calves. (P) N. C.
 A chemical study of the velvet bean.--To determine in what
 respect the velvet bean is deficient in nutritive properties
 or is otherwise injurious. (A) Ala.
 The nutritive value of different soy beans. Ohio.

The nutritive value of wheat and wheat products.	(A)	Wash.
Nutritional properties of the peanut.	(P)	N. C.
The effect of field pea rations on the skeletal development in swine.		Idaho.
The physiological effect of feeding rations restricted to Canadian field peas on growth and reproduction in swine.		Idaho.
Influence of certain feeds - alfalfa meal, germinated oats, creamery buttermilk, codliver oil, cottonseed meal, and hog liver - on the fertility and hatchability of hens' eggs.		Ark.
The influence of feeds of high vitamin content upon the production and hatching quality of eggs and upon the health of the layers.		Idaho.
Deficiencies of feed fed hens as affecting the vitality of chicks.	(A)	Kans.
A test of the economic efficiency of alfalfa hay as a sole ration for dairy cattle in western Nevada and of the relation of this ration to sterility.	(P)	Nev.
The antirachitic properties of legumes and other green plant tissues.		Ohio.
Variations of vitamin content of Texas foods.	(P)	Tex.
A comparison of the vitamin B content of wheat and corn.		Ohio.
The influence of fertilizers upon the nutritive value of crops. (1) The vitamin B content of the wheat kernel.	(A)	Ohio.
A chemical study of the distribution of vitamin A in corn as determined by biological analysis.		Ind.
A study of the factors which affect the quantity of gossypol in cottonseed meal.		Okla.
Injurious effect on livestock of sugar beets and their by-products.	(P)	Utah.
Toxicity of zinc in buttermilk.		Okla.
Relation of wave length to synthesis of plant vitamins and comparison of rate of vitamin synthesis and rate of photosynthesis and of vitamin content and chlorophyll content.	(P)	Okla.

Normal Growth

Growth investigations.	(P)	Mo.
A study of the growth of draft horses.		N. Dak.
A study of the growth and conformation of dairy animals.		Miss.
A growth study of Ayrshire cattle.		W. Va.
A study of the normal growth of dairy cattle.		Idaho.
Normal growth of dairy animals.		N. J.
Normal growth studies of female dairy animals.		Oreg.
A study of the factors influencing growth of dairy heifers.		S. C.
Study of the growth of dairy heifers.		Calif.
A study of the growth of dairy cows as shown by weight and of normal variations in weight of dairy cows.		N. Y. Cornell.
A study of weight in dairy cattle.		Nebr.
Weights and measurements of dairy cattle.		Mich.
Weight of dairy cattle as influenced by pregnancy, age, and methods.		Idaho.
A study of the changes that take place in the conformation of dairy cattle.		N. J.
Photographic studies of the growth and development of dairy animals.		S. C.
Growth studies with swine.	(P)	W. Va.
Growth studies with young pigs.	(P)	W. Va.
Rate of growth of chicks under normal conditions.		Mo.

1/
Energy Metabolism

Chemical and biological studies in animal nutrition. The fundamental food requirements of animals.		Minn.
Respiration chamber. The age changes in energy metabolism of growing domestic animals.	(P)	Mo.

1/ See also Nutritive Properties of Feeds, p. 46.

Growth requirements of the horse.--Chemical composition of horses of different breeds, sex, and age as a means of determining rate of nitrogen, energy and mineral matter retention at different stages of growth; rate of retention to be taken as measure of requirements for growth.	(A)	Ill.
Metabolism trials with young calves.	(A)	Iowa.
Food requirements for cattle. The maintenance requirement of growing cattle.		Minn.
Food requirements for cattle. The energy requirements for growth.		Minn.
Maintenance of dairy cows; metabolism trials with dairy cows, including mineral metabolism.	(P & A)	Vt.
Metabolism in dairy cows.	(A)	Pa.
Determination of the protein and energy requirements for milk production.	(A)	Va.
Nutrition studies with dairy cows.	(P)	N. H.
Digestibility of supplemental feeds for range cattle in New Mexico.	(A)	N. Mex.
Study of basal metabolism with cattle and sheep during various stages of development.	(A)	N. H.
The relative net energy values of timothy and alfalfa hay for sheep.	(A)	Ill.
Net energy values of the roughages - corn stover, corn silage, and soy bean hay.	(A)	Pa.
The net energy value of feeds for chicks.--To determine the net energy value of different farm feeds for chickens of different age and sex.	(A)	ILL.
Digestive studies with poultry.		Calif.

1/ Protein Metabolism

Studies of chemical methods of evaluation of protein concentrates.	Ind.
Chemical and biological studies of proteins.	Ind.

^{1/} See also Nutritive Properties of Feeds, p. 46.

- The nutritive value of the proteins of feeds and animal food products. (A) Ill.
- Biochemistry (protein research). (3) Nutritional investigation. reaction of diet to rate of growth, ophthalmia, and fertility. (A) Conn. State.
- Nutrition of heifers. Protein requirements for growth. Mo.
- Protein trials with dairy cows. (P) Vt.
- Determination of the protein and energy requirements for milk production. (A) Va.
- The upper limit of protein for dairy cows. Ohio.
- The lower limit of protein for dairy cows. Ohio.
- Food value of milk as affected by protein content of the cow's ration. (P) Ohio.
- Mineral and protein nutrition of swine. N. Y. Cornell.
- Specific nutritional effects of rations upon swine and sheep. The effect of calcium, protein, and phosphorus fed pregnant swine and sheep upon the size, vigor, bone, coat, and condition of the offspring. Iowa.
- A study of the comparative efficiency of various proteins in poultry feeding. (A) Nebr.
- Optimum requirements of soy bean protein for chicks. Ind.
- Protein requirements for growing pullets. Ind.
- Value of proteins in meat scraps and tankage for growing chicks. Ind.

1/
Mineral Metabolism

- Inorganic elements in animal nutrition. (1) The specific rôle of the elements, potassium in particular, and the possibility of sodium replacing potassium in maintaining neutrality to body fluids. (A) Oreg.
- Mineral metabolism and mineral requirements of animals. (A) Wis.

^{1/} See also Nutritive Properties of Feeds, p. 46; Vitamin Studies, p. 52; and Home Economics--Human Nutrition, p. 255; Home Economics--Foods--Composition--Minerals, p. 256.

- Relation of lime and magnesia to plant and animal growth. Porto Rico.
- The value of calcium citrate in the nutrition of farm animals. N. J.
- A study of the influence of calcium in different degrees of subdivision on the mineral metabolism of animals (rats). Ohio.
- The mineral requirements of laboratory animals on purified rations. Iowa.
- A chemical study of blood and excreta of dairy animals. Mich.
- Mineral problems of dairy cattle in Minnesota. (P) Minn.
- Maintenance of dairy cows; metabolism trials with dairy cows, including mineral metabolism. (P & A) Vt.
- A study of mineral nutrients with relation to milk production. Nebr.
- Inorganic elements in animal nutrition. (2) Mineral equilibrium in dairy cows during lactating and dry periods. (A) Oreg.
- The calcium balance of dairy cows. Iowa.
- Factors influencing the mineral metabolism of dairy cows. Kans.
- Studying the mineral requirements for growth of dairy heifers. (A) Mass.
- The role of minerals and vitamins in the rations of growing dairy cattle. Oreg.
- Rations for dairy calves. (e) Effect of sunlight and minerals on growth of calves. Wis.
- The calcium and phosphorus requirements for growing dairy heifers. (P) W. Va.
- A study of depraved appetites in dairy calves. Mich.
- Loin disease of cattle. (A) Tex.
- Mineral and vitamin requirements of growing pigs, with special reference to the effect of diet on bone development. (A) Ohio.
- Mineral and protein nutrition of swine. N. Y. Cornell.
- Effect of minerals on the development of swine. (P) Okla.
- Reaction of nutrition and light rays to skeletal deformities in domestic animals.--(a) Leg stiffness in swine. (P) Calif.

Specific nutritional effects of rations upon swine and sheep. Mineral and organic acids for swine.	Iowa.
The relation of the calcium-phosphorus ratio of the ration to normal bone formation in the rat, pig, and chicken.	Ohio.
Specific nutritional effects of rations upon swine and sheep. The effect of calcium, protein, and phosphorus fed pregnant swine and sheep upon the size, vigor, bone, coat, and condition of the offspring.	Iowa.
Nutritional factors affecting shell texture, hatchability, and egg production.	Ohio.
Nutritive requirements of poultry with special reference to vitamin requirements, mineral requirements, and effect of ultra-violet light and of sunlight. (P)	Wis.
The vitamin and mineral requirements of growing chicks. (A)	Ohio.
Calcium metabolism in the chicken. (A)	Ky.
Rickets in chicks.	N. Y. Cornell.
The value of inorganic calcium phosphate in the promotion of growth and milk production.	Mass.
The relative value of bone meal and raw rock phosphate as sources of calcium and phosphorus when used as mineral supplements to the ration of dairy cows.	Mich.
Iodized milk (the feeding of iodine to cows).	Ohio.
Specific nutritional effects of rations upon swine and sheep. The effect of iodine fed pregnant ewes (or sows) upon size, vigor, bone, coat, and condition of offspring.	Iowa.
Scientific nutritional effects of rations upon swine and sheep. The influence of sulfur upon the development of swine, with special reference to the hair growth.	Iowa.
1/ Vitamin Studies.	
The nature, origin, and function of "biós". (P)	Tenn.
The relation of vitamins to disease resistance.	Iowa.
Relation between adequacy of diet and immunity to roup.	Kans.

1/

See also Nutritive Properties of Feeds, p. 46; Mineral Metabolism, p. 50; Home Economics--Human Nutrition, p. 255; and Home Economics--Foods--Composition--Vitamins, p. 256.

Nutritional requirements of poultry.--Essential dietary factors.	(P)	No.
Deficiency diseases in poultry.	(P)	Pa.
The pathological alternations in cattle on variously altered diets.		Mich.
Investigation of the relation of nutrition to contagious abortion in cattle.		Wis.
Chemical and biological studies in animal nutrition. The vitamin requirements of growing calves.		Minn.
Food requirements for cattle. The relation of vitamins to the growth of dairy cattle and to milk production.		Minn.
The rôle of minerals and vitamins in the rations of growing dairy cattle.		Oreg.
Factors influencing the vitamin content of milk.		Minn.
A quantitative method for the determination of vitamin B.		Ohio.
Studies of the vitamin B complex.	(P)	Ala.
Pathological conditions associated with a lack of vitamin B complex.	(P & A)	Ala.
Differentiation of the water-soluble, growth-promoting, and antineuritic vitamins.		Ind.
Vitamin B requirement of the dairy calf.		Pa.
A study of the vitamin B and E requirements in swine. (A)		Kans.
Mineral and vitamin requirements of growing pigs, with special reference to the effect of diet on bone development. (A)		Ohio.
Nutritive requirements of poultry with special reference to vitamin requirements, mineral requirements, and effect of ultra-violet light and of sunlight.	(P)	Wis.
The vitamin and mineral requirements of growing chicks. (A)		Ohio.
Chemical and biological studies in animal nutrition. A study of the nutritional requirements of certain insects.		Minn.
Study of vitamin deficiency. Study of the effect of anti-scorbutic vitamin in the ration of young pigs with special reference to disease.		Ind.

- Studies of fat soluble A as present in the milk of the four dairy breeds. Nebr.
- Determination of whether chlorophyll, chlorophyll Alpha and Beta, the petroleum-ether extracts of the yellow pigments of alfalfa, can be used as a source of vitamin A in animal nutrition. (P) Fla.
- Studies in regard to xanthophyll, the natural yellow pigment of the egg yolk, body fat and blood serum of the hen. Mo.
- A study of the influence of ultra-violet light on animal and plant life and the value of Cel-O-Glass as a material for the passage of this radiation. N. J.
- Studies of the antirachitic potency of the sun's rays at the latitude of Kentucky. (P) Ky.
- Seasonal variation on the quality of sunshine. N. Y. Cornell.
- The effect of sunlight v. nonsunlight on the growth of dairy calves. S. Dak.
- Rations of dairy calves. (e) Effect of sunlight and minerals on the growth of calves. Wis.
- The effect of ultra-violet light upon the growth of calves and upon the calcium content of their blood. Me.
- Relation of nutrition and light rays to skeletal deformities in domestic animals. (a) Leg stiffness in swine. (P) Calif.
- Influence of antirachitic substances on growth in poultry. (P) Me.
- The growth of chicks as affected by sunlight through glass substitutes. Ohio.
- Influence of ultra-violet light, sunlight, and cod-liver oil upon egg production and quality of eggs. N. Y. Cornell.
- The antirachitic value and growth-promoting properties of egg yolk and the effect of the food of the hen and other conditions on this factor in the yolk. (P) N. Y. Cornell.
- Influence of ultra-violet light, direct sunshine, cod-liver oil, yellow corn, and mineral supplement upon the production, hatchability, and quality of the egg. Mo.
- Poultry experiments, Cod-liver oil for chicks. Minn.
- Poultry experiments. Cod-liver oil for laying hens. Minn.
- Hatchability as affected by cod-liver oil and alfalfa hay.. Ohio.
- The fat-soluble vitamin content of eggs as affected by the ration and management of the layers. Ohio.

Reproduction

- Relations of fertility to nutrition in the mammalia. (P) Calif.
- Biochemistry (protein research). (3) Nutritional investigation:
Relation of diet to rate of growth, opthalmia, and
fertility. (A) Conn. State.
- Chemical and biological studies in animal nutrition.
The effect of dietary deficiencies on the oestrous
cycle of the rat. Minn.
- The dietary requirements for reproduction and lactation. (A & P) Ark.
- Cottonseed meal studies. (1) Effect of heavy cottonseed
meal feeding on reproduction and lactation of dairy cow. (P) N. C.
- Cottonseed meal studies. (3) Effects of heavy cottonseed
meal feeding on growth, reproduction, and lactation of
dairy heifers when various qualities of roughages are
used. (P) N. C.
- Difficult breeding in cows and heifers. Promotion of
breeding through feeds. Oreg.
- Virility in herd sires. Promotion of virility through
feeds and exercise. Oreg.
- Fecundity of swine. The normal sexual cycle and as in-
fluenced by age and by unfavorable dietary conditions. (A) Mo.
- A study of the influence of protein upon prenatal and
postnatal development of rats and swine. (A) Okla.
- A study of the vitamin B and E requirements in swine. (A) Kans.
- The physiological effect of feeding rations restricted to
Canadian field peas on growth and reproduction in swine. Idaho.
- Comparison of grain sorghums for egg production, fertility
of male, and hatchability of eggs. (P) Okla.
- A study of the effect of different salts on the reproduction
of animals (rats) Ohio.

Miscellaneous

- Physiological studies with dairy cows. (P) N. H.
- Nutrient requirements of growing poultry. (P) Nebr.
- The relation of diet to bodily activity and to capacity to
withstand unfavorable circumstances. (P) Mo.

The function of enzymatic products in the nutrition of farm animals.	N. J.
Changes in the composition of protoplasmic tissue caused by partial starvation.	Mo.
Investigation of the rôle of physical condition in artificial feed for calves. (A)	Mass.
Effect of dry feed and pastures on thyroid gland of sheep.	Mont.
<div>1/</div> <div>FEEDING</div> <div>2/</div> <div>Feedstuffs</div>	
Studies in feeds.	Okla.
The chemical composition of type forage plants of Wyoming. (A)	Wyo.
Determination of the mineral constituents of various Florida-grown cattle feeds as compared with feeds grown farther north.	Fla.
Chemical composition of hubam (annual white sweet clover).	Iowa.
The composition of cottonseed and cottonseed products produced in New Mexico.	N. Mex.
Cocoa meal as a feed for farm stock. (P)	Vt.
Investigation of feeding value of oat by-products.	Wis.
The utilization of raisin by-products and bean screenings.	Calif.
Utilization of rice and rice by-products.	Calif.
Feed value of screenings and seed by-products.	N. Dak.
A feeding value of unusual feeds.	Wash.
Feeding value of the unusual feeds (cull potatoes, apples, squashes and pumpkins, copper carbonate treated wheat).	Wash.
Studies of yield and digestibility of various cuttings of alfalfa and sweet clover. (P)	Wash.
The feeding value and palatability of sweet clover hay.	Minn.

1/ See also Animal Nutrition, p. 46; for methods of feeding see Management, p. 77.

2/ See also Animal Nutrition--Nutritive Properties of Feeds, p. 46.

- Forage crops. A study of the following annual forage crops with special reference to dry matter and protein: Field peas, peas and oats, sunflowers, millets, etc. Wyo.
- Palatability of hay from native grasses. Alaska.
- Pasture yields; nutrient content throughout season; areas necessary for dairy maintenance and production. Vt.
- Leguminous forage crops.--To introduce and test leguminous plants as feed for animals and as a source of nitrogen. Porto Rico.
- Annual legumes. Grasses for hay and pasture. Md.
- Kudzu as a (1) pasture, (2) soil-improving, and (3) soil-holding crop. Tenn.
- Value of sweet clover as a forage crop for Wisconsin. Wis.
- Production and utilization of sunflower silage where corn cannot be profitably produced. N. Dak.
- Sweet clover v. corn for silage. N. Dak.
- Silage investigations. Chemical and feeding tests of silages made from kafir stover, kafir fodder, cane stover, cane fodder, corn stover, and corn fodder. Kans.
- Investigations of the relative merits of various root crops as human food, stock feed, and for commercial starch production. Hawaii.

Horses

- Feeding purebred draft fillies. Ill.
- Food requirements for growing colts. N. Y. Cornell.
- Effect of balanced and unbalanced rations on work mules. Miss.
- Horse investigation. A comparison of a corn, oats and alfalfa ration with timothy, oats and corn for feeding work horses. Iowa.
- Silage for growing colts. N. Y. Cornell.
- Minerals for growing colts. N. Y. Cornell.
- Horse production. A study of preparation of feeds and the value of minerals in raising draft colts. Iowa.
- Feeding cottonseed meal to work mules. Okla.
- Johnson grass v. soy bean hay for work mules. Miss.

1/
Beef Cattle

Beef cattle investigations.--To determine the increase in weight of animals on pasture.	Alaska.
Maintenance rations for breeding beef cattle.	Ill.
Beef cattle. A study of rations typical of Mississippi for wintering a commercial herd of beef cattle.	Miss.
The use of native grown feeds for wintering beef animals.	Miss.
Fattening beef cattle.	Wash.
Beef cattle feeding experiments. (P)	Ohio.
Feeding tests on beef cattle at Coast station.	S. C.
Steer feeding.	W. Va.
Steer feeding investigations. (P)	Idaho.
Testing the best method of feeding steers upon the feeds grown in the Big Horn basin.	Wyo.
Winter feeding experiments with range cattle.	Kans.
The relationship between winter rations for beef steers and the subsequent finishing of beef steers on bluegrass pasture the following season, certain lots receiving grain supplemental feed while on pasture; and the relations of supplemental grain feeds to the economy of beef production and to the quality of the beef produced.	Va.
Relationship of winter rations for beef calves to subsequent carcass development, (a) wintering calves on native Wyoming feeds, (b) effects of winter rations for beef calves on subsequent gains on pasture, (c) the influence of barley and sunflower silage upon the quality of meat. (P)	Wyo.
Range supplemental feeding studies with beef cattle. (P)	N. Mex.
Fattening cattle. Corn substitutes.	Iowa.
Fattening steers. Comparison of cottonseed meal and whole soy beans for fattening cattle.	Ind.
Comparison of linseed meal, cottonseed meal, and a mixture of linseed and cottonseed meal as supplements for fattening steers.	Wis.

- Effect of alfalfa and grain in various combinations on grade, quality, and palatability of beef and on economy of production. (P) Mont.
- Value of legume hays for fattening steers. Ark.
- Fattening cattle. Comparison of roughages. Iowa.
- The feeding value of sweet clover hay for beef cattle. Minn.
- A comparison of peat-land and upland hays for wintering yearling steers. Minn.
- Growing steers (winter rations). (1) Straw and cottonseed cake. (2) Straw and limited alfalfa hay allowance. (3) Alfalfa hay, medium and light feeds. (4) Alfalfa hay and silage, medium and light feeds. Oreg.
- Steer feeding tests. A comparison of corn silage, sorghum silage, sargrain silage, cottonseed hulls, and Johnson grass hay as the roughage part of the ration for finishing steers for the market. Miss.
- Fattening steers on sumac silage, sumac fodder and cottonseed hull rations supplemented with ground milo heads and cottonseed meal. Tex.
- The value of corn silage and protein supplements for fattening steers. Pa.
- Silage feeding investigations. Methods of securing maximum utilization of silage in beef cattle feeding. Studies of effects of feeding varying quantities of cottonseed meal with silage. Kans.
- Silage feeding experiments. Corn, sweet clover, sunflower, and millet for steers. N. Dak.
- Grazing records. (1) The effect of winter rations upon the gains made while in the feed yards and on summer range. (2) Final weight at time of marketing. (3) Cost of production. Oreg.
- Methods of utilization of native pasture in beef cattle feeding. Kans.
- Beef cattle. Pasture trial for cattle. Minn.
- Beef cattle. A study of pasture gains made by beef cattle of various ages. Miss.
- Sweet clover pasturing. N. Dak.
- Value of yellow sweet clover, white sweet clover, alfalfa, native grasses, and Sudan grass for pasture. S. Dak.

Beef cattle. Fattening 2-year-old steers.	Minn.
Fattening steers. Comparison of oats and corn with corn alone for 2-year-old cattle.	Ind.
Fattening steers. Comparison of ground and whole oats for 2-year-old cattle.	Ind.
Fattening 2-year-old cattle on roughage rations.	Wash.
Fattening yearlings and calves.	Wash.
The preparation of a shelled corn and alfalfa hay ration for fattening yearling steers.	Minn.
Fattening yearling steers with hay and grain and hay alone.	Mont.
A comparison of alfalfa hay and peat-land timothy hay fed with shelled corn for fattening yearling steers.	Minn.
Methods of fattening beef cattle in California. (a) A study of different methods of finishing range calves as "baby beef".	Calif.
Wintering and finishing calves.	Ohio.
Cattle feeding for fattening baby beeves. (P)	Okla.
Baby beef feeding trial.	Minn.
Fattening beef calves for market.	Minn.
Feeding beef calves previous to weaning time.	Mo.
Fattening steers. Comparison of oats, corn and cottonseed meal for calves.	Ind.
Feeding baby beeves with rolled barley and cottonseed meal as chief concentrates.	Ariz.
Ration experiments with cattle. Fattening baby beeves.	Colo.
Methods of preparing sorghum roughage and grains for feeding to fattening calves and lambs.	Tex.
Soy beans and soy bean products as nitrogenous supplements for fattening calves.	Ill.
Ear corn silage for fattening calves.--The salvage and utilization of soft corn. The value of siloed immature ears as a feed and the relative value of shelled corn and corn in the form of ear corn silage.	Ill.

Fattening western calves on grass.	Ohio.
Shock corn for heifer calves.	Ohio.
Fattening cattle. Effect of sex in baby beef production. Comparison of ration.	Nebr.
Growing heifers (winter rations). (1) Alfalfa hay alone, heavy and light feeds. (2) Alfalfa hay and silage, heavy and light feeds. (3) Alfalfa hay and 3-lb. rolled barley. (4) Alfalfa hay and straw.	Oreg.
Feeding and killing qualities of Brahma, Shorthorn, Hereford, Brahma-Shorthorn, and Brahma-Hereford calves.	Tex.

Dairy Cattle ^{1/}

Dairying. The breeding and feeding of the dairy herd.	Oreg.
Increasing the production of dairy cows by better feeding.	Minn.
Management of dairy herd. Grain rations for dairy cows.	Minn.
A comparison of home-grown and purchased feed stuffs for economical milk production.	Fla.
Comparison of rolled barley and corn meal.	Ariz.
Ground barley v. ground corn for dairy cows.	Mich.
Dairy cattle feeding studies. (2c) Comparison of home- grown concentrates, corn, oats, cottonseed meal, and bran with commercial mixed feed.	N. C.
Value of rice by-products for dairy cows.	Ark.
Utilization of fruit by-products in the feeding of dairy cows.	Calif.
Dairying. The value of ground flaxseed as a home-grown protein concentrate in winter rations.	Oreg.
The use of cottonseed meal and hulls as a ration for lactating cows.	Tex.
Protein requirements of grade milk cows.	Guam.
Use of soy bean oil meal, soy bean hay, and soy bean straw for dairy cattle.	Ill.
Legumes for growth, production, and reproduction.	Ohio.

^{1/} See also Milk Secretion, p. 97.

Legumes for milk production.	Ohio.
A study of the effect of alfalfa and pasture as an exclusive feed on the growth and milk production of dairy heifers. (P)	Wyo.
A comparison of the milk-producing qualities of soy bean hay and alfalfa hay.	W. Va.
Comparison of eastern Oregon with western Oregon alfalfa hay for dairy cows.	Oreg.
The relative value for milk production of the protein of legume and of nonlegume roughage.	N. Y. Cornell.
Feeding and pasturing experiments with dairy cattle.	
Pasturing tests with Sudan grass, feeding tests with Sudan hay, alfalfa hay, and cane hay.	Kans.
Feeding tests (with dairy cows) with crops new to Minnesota.-- Sweet clover hay, sugar beet tops, and alfalfa hay.	Minn.
The study of the value of hay in the rations of dairy cows.	Mich.
Western native hay for milk production. (P)	Wyo.
Study of roughage for dairy cattle.	Nebr.
Pasture v. dry feed for dairy cows.	Miss.
Feeding dairy cows.--To determine the feeding value of certain forage crops.	Miss.
Comparison of milk production and maintenance of body weight of cows grazing on summer pasture, with and without grain supplements.	Oreg.
Dairy investigations. (3) Effect of grain upon milk and butterfat when cows are on pasture.	Oreg.
A comparison of grain feeding with no grain feeding of dairy cows on native pasture.	Kans.
Cooperative dairy pasture experiments.	N. Dak.
A study of the different varieties for pastures for milk production.	W. Va.
Comparison of alfalfa v. sweet clover pasture for cows.	S. Dak.
Pasture experiments with sweet clover and grasses.	N. Mex.
A test of Sudan grass as a pasture for dairy cows.	Kans.

- Acre value of irrigated pastures.--To determine the carrying capacity and value of irrigated pastures for dairy cows. Colo.
- Investigations as to relative merits of various pasture and soiling grasses and legumes for animals, especially dairy cows. Hawaii.
- Studies with the feeding of succulents to dairy cows. (a) Kale v. corn silage. (b) Economical feeding of silage. (c) Effect of turnips on the quality of milk and butter. (d) Effect of kale on quality of milk and butter. Oreg.
- The use of succulent feeds for milk production. Iowa.
- The comparative value of various silages for milk production. Idaho.
- Comparison of sorghum silage and corn silage for milk production. S. C.
- Dairy cattle feeding experiment. Comparison of honey drip sorghum silage with Mexican June corn silage. Ariz.
- Feeding milk cows.--Comparing beets with corn silage in the feed of dairy cows. Okla.
- A comparison of early, medium, and late varieties of silage corn on the basis of milk produced. Conn. Storrs.
- A study of roots as a feed for dairy cows. W. Va.
- Minerals for cows. Ohio.
- Minerals for dairy cows. Ala.
- Minerals for dairy heifers. Ala.
- Management of dairy herd. The efficiency of buttermilk and skim milk in raising dairy calves. Minn.
- A study of the best methods of feeding calves while receiving milk. Idaho.
- A comparison of powdered buttermilk and semisolid buttermilk for calf rations. (P) Wash.
- Studies concerning the use of skim milk in the ration of dairy calves. Pa.
- Minimum milk requirement for raising dairy calves. N. J.

Calf feeding studies with special reference to replacing a part of the milk usually consumed by prepared feeds.	N. C.
Rations for dairy calves. (a) Use of skim milk in well-established rations for check purposes.	Wis.
Comparison of feeds for calves.	Iowa.
Rations for dairy calves. (b) Grange League Federation calf gruel.	Wis.
Rations for dairy calves. (d) Grange League Federation calf gruel meal fed dry.	Wis.
Rations for dairy calves. (c) Wisconsin home-made gruel.	Wis.
Rations for dairy calves. (f) Gruel feeding v. dry concentrate feeding for raising dairy calves.	Wis.
Commercial calf gruel meal v. a home-mixed calf gruel meal.	Wis.
A study of methods of raising calves. Studies of the feeding value of grain and forage sorghum seed for dairy calves.	Kans.
Rations for dairy calves. (h) Economic effect of cod-liver oil in rations for dairy calves.	Wis.
Calf-pasturing experiment.	Ariz.
Winter rations for young stock in Idaho.	Idaho.
Feeds for wintering dairy heifers under practical farm conditions in Idaho.	Idaho.
Feeding value of cottonseed hulls as a roughage for growing dairy heifers.	Tex.
Effect of cottonseed meal and alfalfa ration on the growth, vigor, breeding, and lactation of dairy heifers. (P)	N. Mex.
Value of legume hays for dairy heifers.	Ark.
<div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 10px;">1/</div> <div>Sheep</div> </div>	
Sheep and lamb feeding investigations.	Minn.
Lamb feeding investigations. (P)	Idaho.

Feeding and finishing range ewes and lambs.	Nev.
Feeding western lambs. Tests of various rations for finishing.	Kans.
Rations for fattening lambs.	Colo.
Rations for fattening lambs. (P)	Nebr.
Tests to determine the best ration for fattening sheep made up of the feeds grown in the Big Horn basin.	Wyo.
Comparison of various rations for fattening lambs during the fall and winter seasons.	Ariz.
Comparative value of southern concentrates for sheep production.	Ark.
Study of the efficiency of various rations composed of home-grown feeds for fattening lambs.	Wyo.
Grain feeds for fattening lambs.	Pa.
Fattening western lambs. The value of whole oats and shelled corn.	Ind.
Efficiency of barley alone as compared with barley and oats for fattening lambs.	Wyo.
Lamb feeding. Grain v. no grain for finishing spring lambs.	Tenn.
Livestock feeding tests. (1) Lamb fattening. Different amounts of grain to determine most economical ration.	Oreg.
A study of the value of certain grains and seeds occurring in grain screenings for fattening lambs.	N. Dak.
Fattening western lambs. (1) To compare methods of feeding a ration of corn and alfalfa hay in dry lot. (2) To compare the above with corn and alfalfa pasture and corn and soy beans when "lambled down."	Ill.
Fattening cutback lambs.	Wash.
Fattening range lambs in dry lot.	Iowa.
Fattening wether lambs.	Okla
Lamb feeding investigations.--To determine the feasibility of feeding late native lambs for the market, in the dry lot on shelled corn, cottonseed meal, legume hay, and on bluegrass pasture.	Ky.
Finishing western range lambs under North Dakota farm conditions.	N. Dak.

Efficiency of cottonseed meal and representative New Mexico roughage for fattening lambs. (P)	N. Mex.
Methods of preparing sorghum roughage and grains for feeding to fattening calves and lambs.	Tex.
Fattening lambs. (1) Alfalfa hay and barley. (2) Alfalfa hay and wheat. (3) Alfalfa hay and peas and barley. (4) Alfalfa hay and oats.	Oreg.
Sheep investigations. A comparison of alfalfa hay, soy bean hay, and Johnson grass hay as roughages for wintering ewes.	Miss.
Fattening western lambs. The value of feeding clover hay once and twice every fifth day in rations of corn, cottonseed meal, and corn silage with full feed of clover hay every day.	Ind.
Livestock feeding test. (2) Value of hay and pasture for carrying lambs for late high markets.	Oreg.
Pasture yields for lambs.	Oreg.
To determine the value of white sweet clover, yellow sweet clover, and Sudan grass as pasture for sheep.	S. Dak.
Fattening western lambs in the cornfield.	Ohio.
"Sheeping-down" corn.	Iowa.
Cornfield lamb feeding.	Colo.
Forage crops for sheep and lambs.	Ohio.
Wool and lambing record. (2) Effect of winter rations on body weight and wool production of ewes, birthweight, growth, and final development of lambs.	Oreg.
Maintenance rations for breeding ewes.	Okla.
Cottonseed meal v. cottonseed cake for supplementing pastures for breeding ewes.	N. C.
Wintering ewes. (1) Alfalfa hay alone. (2) Alfalfa hay and 1 lb. of silage. (3) Alfalfa hay and 1 lb. of silage after lambing. (4) Alfalfa hay and 1 lb. of grain after lambing.	Oreg.
Economic value and nutritive effect of corn silage as a feed for wintering pregnant ewes.	Wis.
Minerals in the winter rations of pregnant and nursing ewes.	Ohio.

1/
Swine

General.

Hog feeding experiments.	S. C.
Hog rations.	Utah.
Livestock feeding tests. Hog feeding. Various methods of finishing for market.	Oreg.
Winter feeding of fall pigs.	S. Dak.
Rations for fattening pigs.	Nebr.
Dry lot rations for swine. Fall pigs.	Iowa.
Dry lot rations for swine. Spring pigs.	Iowa.
Rations for pigs at weaning time.	Mo.
The utilization of natural growth in Mattamuskeet Lake bed as a source of food for swine, its feeding value and its persistence under swine pasturage.	N. C.
Swine feeding investigations. A comparison of the economy of full feeding and limited feeding of grain to growing pigs under dry lot and pasture conditions.	Minn.
Commercial pig feeds v. home-mixed rations for growing pigs.	Mich.
A comparison of home-grown and purchased feedstuffs for economical pork production.	Fla.
Swine feeding experiment.--To determine the comparative value of various rations both with and without pasture.	Tenn.
Comparative value of Michigan grains for swine feeding.	Mich.
Swine feeding investigations.--Tests of various rations for finishing. Tests of mineral supplements.	Kans.
Wide, medium, and narrow nutritive ratios in different combinations of feeds for fattening pigs.	Wis.
Comparison of concentrates and of minerals and protein supplements for swine on forage.	Wis.
Pig feeding investigations. (4) Water necessary for pigs.	Oreg.
Improving corn and tankage for fall pigs.	Ohio.

1/ See also Meats--Pork, p. 94.

General. (Cont.)

Maintenance of brood sows.	Mont.
Swine feeding. Economical winter rations for brood sows.	Oreg.
Winter rations for brood sows.	S. Dak.
Wintering brood sows. (1) The effect of rations fed during gestation upon litters farrowed and weaned. (2) Comparison of corn alone and corn plus mineral mixture as rations for sows during gestation. The value of adding minerals to suckling rations for pigs produced by corn-alone sows. (3) Comparison of the relative productivity of gilts and mature sows.	Ind.

Concentrates.

Fattening hogs with northern Montana-grown grains.	Mont.
Ration experiments with swine.--Ground corn and tankage; ground barley and tankage; ground corn and alfalfa meal; ground corn, alfalfa meal, and beet molasses; ground corn and pinto bean meal.	Colo.
Comparative value of corn and barley when fed on both alfalfa and rape pasture.	Mich.
Feeding hogs to compare the value of corn and dry-land barley to determine the amount of pork per acre that can be obtained under dry-farming conditions.	Wyo.
Swine feeding investigations. The comparative values of corn and oats for growing pigs.	Minn.
Oats for fattening hogs.--To compare the palatability and feeding value of coarsely and finely ground oats for growing fattening hogs.	Ill.
Oats for fattening hogs.--To determine the value of whole, finely ground, and hulled oats for growing fattening hogs when the oats are fed in different proportions with corn.	Ill.
Swine feeding investigations. The feeding value of oats.	Minn.
Oats as a feed for pigs.	Ohio.
Rations for brood sows. The value of oats in the winter ration for pregnant sows.	Ill.
Barley feeding experiment.--To determine the best way to feed barley to fattening hogs.	Ky.
Wheat and barley for pigs when supplemented with tankage.	Mont.

Concentrates. (Cont.)

Comparative value of peas and barley for fattening hogs.	Wis.
Swine investigations. The preparation of kafir corn for fattening pigs.	Okla.
Swine feeding investigations. (a) The value of ground rye fed with certain supplements as a ration for growing pigs.	Minn.
Nutritive value of cull beans for growing and fattening pigs.-- Effect of cull beans upon the quality of pork.	Mich.
Swine feeding. Screenings for fattening hogs.	Minn.
Cassava as a part ration for swine.	Guam.
Coconut meal as feed for swine.--To determine the value for swine of coconut meal when fed as the entire concentrate or in combination with other local feeds.	Guam.
Breadfruit as a part ration for swine.	Guam.
The utilization of fruit and fruit by-products in the feeding of swine.	Calif.
Pig feeding investigations. (3) Waste fruit for pigs.	Oreg.

Protein Supplements.

Supplemental feeds for swine.	Mont.
Comparative tests of the value of animal and vegetable proteins for feeding hogs.	S. C.
Swine feeding investigations. (b) A comparison of protein supplements in rations for pigs following weaning.	Minn.
Pig feeding investigations. (7) Protein supplements for pigs.	Oreg.
Protein supplements for growing pigs. (P)	Del.
Protein supplements with barley and wheat for growing and finishing swine.	Idaho.
Comparison of wheat middlings and of "Palmo Midds" for feeding with corn and tankage.	Ohio.
Growing pigs. Protein supplements.	Ind.
Protein supplements to corn for pigs in the dry lot.	Va.
Supplements to corn in rations for fattening swine.	Pa.

Protein Supplements. (Cont.)

Comparison of supplements to corn and barley for swine, including skim milk, whey, tankage, linseed meal, wheat middlings, corn germ meal, and minerals when fed separately and in combination.	Wis.
Use and value of supplements in hogging down corn.	Mont.
Hogging off crops. (Protein supplements to corn.)	Ind.
Feeding hogs on pasture. (Protein supplements.)	Ind.
Growing pigs. (Soy beans for fall pigs.)	Ind.
Growing pigs. (Soy beans and wheat shorts for pigs.)	Ind.
Velvet beans for feeder pigs.	Ala.
Growing pigs. (Comparison of soy bean rations with corn, tankage, linseed meal, and alfalfa meal.)	Ind.
A study of soy beans as a supplement to corn with special reference to mineral deficiencies of soy beans. (P)	Ind.
Soy bean meal for fattening pigs.	N. C.
Comparison of varieties of soy beans for self-feeding, free choice, with corn and minerals to shotes in dry lot.	Ohio.
Preparation of soy beans and soy bean oil meal for pigs.	Ohio.
Minerals, tankage, and soy beans with corn for pigs on rape pasture.	Ohio.
Cottonseed meal for fattening pigs.	N. C.
Dry lot rations for fattening hogs.--To test the value for fattening hogs in dry lot of a protein supplement mixture which contains 25 per cent cottonseed meal.	Ill.
Skim milk utilization and dairy by-product usage, with special reference to Vermont practice with hogs. (P)	Vt.
Comparison of fish meal and soy bean oil meal as nitrogenous supplements for brood sows.	Md.
A comparison of fish meal and tankage as protein supplements and their effect on the growth of swine and quality of carcass.	N. J.
Cottonseed meal for maintaining, growing, and finishing hogs.	Tex.

Protein Supplements. (Cont.)

Tankage as a supplement to corn and soy beans for pork production.	Ill.
Velvet beans for brood sows.	Ala.
The effect of yeast upon the digestibility of feed.	Okla.

Roughages.

Value of legume hays for brood sows during gestation and lactation.	Ark.
Alfalfa hay as winter feed for brood sows. (P)	Del.
Growing pigs (The value of alfalfa meal as supplement to corn-soy bean ration).	Ind.
Dry lot rations for swine. Soft ear corn silage feeding.	Iowa.

Forage Crops.

Pasture experiment with hogs.	Mich.
Forage crops.	W. Va.
Forage crops for swine. (P)	Del.
Forage crops for swine.	Mo.
Forage crops for hogs.	Nebr.
Value of permanent pasture for fattening pigs.	N. C.
Value of crops when "hogged off".	N. C.
Hogging-down experiment.	Ky.
Forage crops for fattening hogs.	Ala.
Forage crops for growing and fattening swine.	Ark.
Forage crops for swine. Growing and fattening pigs.	Iowa.
Forage crop experiment with swine.--Pasture crops with swine.	Mont.
Forage crops for swine. Composition of forage crops as affected by various factors.	Iowa.
Forage crops for swine. Summering sows.	Iowa.
Forage crops for swine. Suckling sows with litters.	Iowa.

Forage Crops. (Cont.)

Forage crops for swine. Developing breeding stock.	Iowa.
Hog pasture experiments to determine a suitable sequence of grazing crops for hogs and the necessary supplemental rations of concentrated feeds to produce pork economically, and the relation of pasture crops to the soft pork problem.	Va.
Hogging off field crops.	Idaho.
Hogging off crops.--(To furnish hogs for soft pork slaughter test.)	Ind.
Experiments in irrigation agriculture. Experiments with crop rotation, commercial fertilizers, pasture grasses, alfalfa irrigation, winter irrigation of various crops, and the use of alfalfa as a pasture for hogs.	Kans.
Comparison of rape, sweet clover, soy beans, Sudan grass, and alfalfa as forage crops for pigs.	Ohio.
Grazing white sweet clover, yellow sweet clover, alfalfa and Sudan grass with pigs.	S. Dak.
Pig feeding investigations. Pastures for pigs (rape, clover, rye grass).	Oreg.
Swine fattening. Comparison of alfalfa hay, alfalfa pasture, and hogari for fattening swine.	Ariz.
Utilization of alfalfa pasture in pork production.	Mich.
Grazing alfalfa (pigs).	N. Dak.
Swine feeding. (1) Growing on alfalfa pasture and limited grain and finish on stubble. (2) Growing on alfalfa pasture, limited grain and finish by hogging down mixture of peas and wheat. (3) Growing on alfalfa pasture, limited grain and finish on self-feeder. (4) Growing on alfalfa pasture, skim milk, limited grain and finish on self-feeder. (5) Growing and fattening on alfalfa pasture and grain in self-feeder.	Oreg.
Forage crops for swine. Hogging down corn.	Iowa.
Hogging down corn.	N. Dak.
Hogging down corn and soy beans.	Ill.
Hogging down corn with soy beans and tankage as supplements.	Minn.
Comparison of varieties of soy beans grown in corn for hogging down.	Chic.

Forage Crops. (Cont.)

Economic production of pork by hogging off peas and corn.	N. Dak.
Hogging down peas.	N. Dak.
Experiment in hogging down of rye.	Md.
Utilization of wheat stubble in production of feeder hogs.	Wash.
Utilization of rape pasture in pork production.	Mich.
Rape pasture for pigs.	S. Dak.

Minerals.

Testing the feeding value of different mineral feeds.	Mich.
The effect of adding various minerals to rations for fattening hogs.	Tex.
Dry lot feeding. (1) Comparison of different mineral mixtures when fed with corn and soy beans to fattening hogs in dry lot. (2) Comparison of native hardwood ashes and Canadian hardwood ashes as components of simple mineral mixtures. (3) Comparison of wood ashes and pulverized limestone as sources of calcium in mineral mixtures for hogs. (4) Comparison of 16 per cent acid phosphate, powdered rock phosphate, raw bone meal and steamed bone meal as sources of phosphorus supply in mineral mixtures for hogs. (5) The quantitative effect of mineral supplements in the corn-soy bean ration.	Ind.
Fattening hogs on pasture. (Mineral mixtures.)	Ind.
Minerals, tankage, and soy beans with corn for pigs on rape pasture.	Ohio.
Hogging off crops. (Mineral supplements to corn and soy beans.)	Ind.
Effect of including copperas in the mineral mixture fed with rations of (1) corn and tankage, (2) corn and skim milk, and (3) corn and soy bean oil meal.	Ohio.
Mineral supplements for brood sows.	Wis.
Wintering brood sows. (1) The effect of rations fed during gestation upon litters farrowed and weaned. (2) Comparison of corn alone and corn plus ineral mixture as rations for sows during gestation. The value of adding minerals to suckling rations for pigs produced by corn-alone sows. (3) Comparison of the relative productivity of gilts and mature sows.	Ind.

1/
Poultry

The raising of young turkeys by artificial methods.--Feeding.	Minn.
Improvement and conservation of farm poultry. Poultry feed palatability.	Kans.
Feeding experiments.	N. Y. State.
Poultry feeding and management.	Minn.
Feeding poultry at high altitudes. (P)	Wyo.
Investigations in poultry husbandry. Feed mixtures for day-old chicks.	Minn.
Rations for starting chicks.	Iowa.
Comparison of various feeds for young chickens.	Tex.
Effect upon mortality, growth, and feather development of feeding White Leghorn chicks different amounts of different animal foods.	Minn.
Chick feeding and brooding project.--To determine the most suitable protein supplement for feeding young chickens.	Ariz.
The value of sour skim milk and beef scrap in rations of growing chicks, and the cost of growing chicks.	Mo.
A study of the relative value in growth for the first 8 weeks of condensed buttermilk, dried buttermilk, meat meal, and fish meal.	N. C.
Value of yellow corn, cod-liver oil, etc., for development of chicks.	Okla.
Poultry fattening. (P)	La.
Experiments in fattening poultry.	N. C.
Experiments to determine the best methods and rations for finishing market poultry. The effect of the consistency of a feeding ration in relation to its value for fleshing poultry.	Iowa.
Experiments to determine the best methods and rations for finishing market poultry. Comparative value of dried, semisolid, and fresh buttermilk in crate fattening poultry for market.	Iowa.
Hopper-feeding moulting hens with both grain and mash.--To determine proportion of grain and mash moulting hens will consume and the effect on egg production of this method of feeding.	Miss.

Value of an all-mash ration as compared to a grain feeding test.		S. Dak.
Whole grain mash supplemented with various feeds and combinations of them for laying pullets.	(P)	Wash.
Ground v. unground grain mixtures with sour skim milk for laying hens.	(P)	Wash.
Feeding demonstration and cost of egg production.		Ind.
Egg-laying competition. Difference in feed consumption exhibited by the different strains.		Md.
Corn poultry feeding experiment.	(P)	S. Dak.
Comparison of grain sorghums for egg production. Fertility of male and hatchability of eggs.	(P)	Okla.
Improvement and conservation of farm poultry. A comparison of the feeding value of kafir, cane, milo, and corn.		Kans.
Experiments to determine the best ration for egg production that can be devised using a maximum amount of home-grown feeds.		Wyo.
Feeding.--Relative feeding values of different cereal grain mixtures for production in an effort to utilize home feeds.		N. Dak.
Value of rice by-products for laying hens.		Ark.
Utilization of waste or cheap foods.		N. Y. State.
Poultry feeding. A comparison of protein feeds and calcite v. oyster shell.		Utah.
High protein feeds in mash.	(P)	S. Dak.
Comparison of the feeding values of protein from vegetable sources with protein from animal sources for laying hens.		Tex.
Vegetable v. animal sources of proteins for laying hens.		Ark.
The value of sour milk, beef scrap, cottonseed meal, gluten meal, and oil meal in rations for egg production.		Mo.
Linseed oil meal, soy bean meal, and cottonseed meal v. meat scraps in the ration for layers.		Ohio.
Protein supplement for egg production. Relative value of alfalfa and bran as basis for mash, and cottonseed meal, meat scrap, and dry buttermilk as sources of protein.		Ariz.

The value of certain vegetable protein feeds supplementing sour skim milk in a ration for laying hens.		Idaho.
Testing the effect of varying the amounts of animal protein upon egg production.		Wyo.
Feeding.--The value of yeast as a supplement to animal protein.		N. Dak.
Feeding requirement of meat scraps with and without mineral supplements in rations for laying pullets.		Ind.
A study of fish meal v. meat meal in egg production.		N. C.
The influence of meat meal v. milk upon production and health of poultry.		N. C.
A comparison of tankage and condensed buttermilk for laying hens		Ky.
Comparison of skim milk, fresh buttermilk, semisolid buttermilk, dried buttermilk, tankage and 70 per cent crackling scraps as a source of protein for laying hens.		Iowa.
The relation of certain constituents of sour skim milk to egg production.		Idaho.
The determination of the efficiency of different forms of liquid milk as a substitute for the mashes customarily fed. (a) Sweet whole milk. (b) Sweet skim milk. (c) Sour skim milk. (d) Buttermilk.		Minn.
Effect of vegetable proteins on egg production. (P)		Ala.
Cottonseed meal feeding experiments. (P)		N. Mex.
Cottonseed meal for poultry feeding. (P)		Okla.
Utilization of soy beans for poultry feeding. (P)		Del.
The comparative value of certain feeds as supplements to pea meal for laying hens.		Idaho.
Mungo beans as a protein supplement for chickens.		Guam.
Coconut meal as part ration for chickens.		Guam.
Cowpeas as a protein supplement for chickens.		Guam.
Cod-liver oil and alfalfa hay chopped as a substitute for succulent green feed for layers.		Ohio.
Alfalfa hay chopped v. alfalfa leaf meal for egg production.		Ohio.

Mangels as a poultry succulent.	R. I.
Alfalfa poultry feeding experiment.	(P) S. Dak.
The value of alfalfa pasturage to supplement mainly corn. The amount of land required by different succulents for confined hens.	R. I.
Swiss chard as a poultry succulent.	R. I.
Rape as a poultry succulent.	R. I.
Alfalfa as chicken pasturage.	R. I.
The grit requirements of the growing chick.	Ohio.
Effect upon egg production when certain minerals are removed from the ration.	N. C.
Effects of minerals upon the development of chicks during the first 8 weeks of their lives.	N. C.
A comparison of ground limestone and pearl grit as sources of shell-forming material.	Ky.
A comparison of oyster shell and Egg-O-Shell.	Iowa.
The value of clam and oyster shells for poultry.	Iowa.

MANAGEMENT

General

Feed reserves for livestock in Montana.	Mont.
Peat for barn litter.	Minn.
Nutritive and economic effect of cutting or grinding hay and other dry roughages for livestock.	(P) Wis.
Shipping shrink of livestock.	N. Dak.
Cost of maintaining the herd sire.	N. C.
Brown hay investigations.	Alaska.

1/
Grazing

Activities of livestock on the range.	Tex.
Animal grazing habits.	N. Dak.
Range pasture studies.	N. Dak.
Grazing studies.	Idaho.
Range survey. (P)	Utah.
Study of the carrying capacity of the pastures on the ranch experiment station in Sutton-Edwards Counties.	Tex.
Pasturing methods. A study of pasture values and pasture methods for horses, cattle, sheep, and swine.	Kans.
Pasture investigations at 101 Ranch.	Okla.
Pasture carrying capacity studies with beef cattle.	N. C.
Grazing trials.--To determine the cost of production of beef cattle when allowed to graze on native grasses.	Alaska.
Methods of handling and measuring the carrying capacity of beef cattle on Utah pastures. (P)	Utah.
Grazing studies with sheep.	Mont.
Summer fallow experiment with sheep (at Akron). Advisability of sheep on dry land farms for grazing weed growth on summer fallow. Also study of carrying capacity of native sod.	Colo.
Land clearing with goats.	Oreg.
The relation of forest grazing to the deterioration of forest stands.	Ohio.
The effect of grazing in the woodlot	Iowa.

Horses

Economic wintering of work horses.	Mich.
A comparison of lot v. stall feeding for work mules.	Miss.
Cost of maintaining brood mares.	Miss.
Cost and advantages of grinding corn fodder for idle horses.	Minn.

1/ See also Field Crops--Pastures and Ranges, p. 230.

Beef Cattle

The introduction of purebred beef cattle.	Ky.
Economic beef production investigation.	Ark.
Investigations in cattle production.	Okla.
Beef cattle investigations on Coastal Plains soils. (P)	Miss.
Economic value of Holstein-Angus cross for producing beef in grade Holstein dairy herds.	Wis.
Dual purpose cattle on the dry farm of northern Montana.	Mont.
Maintaining a herd of grade dual-purpose Shorthorns to show the production of both beef and butterfat under farm conditions.	Minn.
Method of managing and feeding a purebred beef herd.	Wash.
Beef cattle. A study of the effects and economy of shelter for the breeding herd of beef cattle.	Miss.
Wintering beef cows.	Ohio.
Age of breeding range cattle.	Kans.
Calf management studies, beef cattle.	N. C.
The calf crop under range and semirange conditions.	Mont.
Comparison of the production of baby beef, 2-year-old and 3-year-old steers.	W. Va.
Heifer v. steer calves for baby beef.	Ill.
Steer calves v. heifer calves.	Ohio.
Winter feeding and time of marketing steers.	Ala.
Effect of fasting upon the "fill" of cattle.	Ill.
The free-choice self-feeder method of raising beef calves.	Minn.
Value of grinding grain and roughage for cattle.	S. Dak.

Dairy Cattle

Ferd management.	N. Y. State.
Dairy investigations (2) Herd improvement and management under coast conditions.	Oreg.

A study to determine the most economical system of management for dairy cows in Uinta County.	Wyo.
Experiments to determine an economical system of dairy management for the Star Valley in Wyoming.	Wyo.
The development and maintenance of a dairy herd.	N. Y. Cornell.
Calf raising.	Okla.
Calf feeding studies with reference to a more economical method of producing replacement dairy animals.	N. C.
Economical vealing of calves.	Oreg.
Economic value of Holstein-Angus cross for producing beef in grade Holstein dairy herds.	Wis.
Relation of the system of feeding and management to production.	Idaho.
Dairy cattle feeding studies. Effect of feeding and management upon quantity and cost of production.	N. C.
Dairy investigations. Effect of summer soiling on milk production.	Oreg.
Pasture investigations. (a) Cost of milk production on farms with and without pasture. (b) Possibilities of irrigated pastures in the Willamette Valley.	Oreg.
Forage crops. (1) Development of a soiling crop system for summer soiling for dairy cows.	Oreg.
The self-feeder for dairy cows.	Ill.
Individual self-feeders for dairy calves.	S. Dak.
A study of the self-feeder in feeding yearling heifers.	W. Va.
The value of grinding feeds for the dairy ration.	Ind.
Tests to determine whether it is economical to grind certain grains and forage which are fed to dairy cows.	Va.
Value of grinding roughage and grains for dairy cows.	S. Dak.
Grinding roughages for dairy cows.	Ohio.
Preparation of roughage for feeding dairy cattle.	Mont.
Preparation and economic use of hays in feeding dairy cattle. (P)	S. C.
Feeding for advanced registry.	Okla.

Record of the Station herd.	Mass.
A study of the herd records of four dairy breeds with reference to feed, total milk, solids, and fat.	Conn. Storrs.
Official testing.	Wash.
Official testing of dairy cows.	Mo.
Official testing for advanced registry and Register of Merit in Idaho.	Idaho.
Advanced registry tests.	N. H.
Maintenance of herd free from tuberculosis.	N. Y. State.
Methods of practical control and economic effect of contagious abortion upon a dairy herd.	Nebr.
A study of management as a factor in the control and elimination of contagious abortion in dairy cattle.	W. Va.
The effect of flies on dairy production and the value of certain fly repellants.	Calif.
Value of fly repellants in maintaining summer milk production.	N. C.
Effect of flies and spraying on milk production.	Ind.
Sheep	
Management of range sheep.	Mont.
Systems of farm flock management.	Chio.
Methods of managing a farm flock of purebred sheep.	Wash.
Survey of Maryland sheep industry and a correlation of the factors which determine the successful raising of sheep. (P)	Md.
Methods of producing more and better lambs in Nevada range flocks.	Nev.
Raising spring lambs.--To determine the cost in feed and pasture of raising spring lambs, and the relative values of the different types of management.	Oreg.
The value of grinding grain and roughage for lambs.	S. Dak.
Wool and sheep management. (P)	Utah.
Winter maintenance of ewes.--A study of the best methods of maintaining winter ewes.	Colo.

Wintering ewes.	Wyo.
Wintering pregnant ewes.	Iowa.
Methods of wintering pregnant ewes and fattening their lambs for early markets. Creep-feeding lambs.	Mo.
Wintering ewe lambs retained for breeding as yearlings the following year.	N. C.
Fattening western lambs. A comparison of types of western lambs for fattening purposes.	Ind.
Western lambs v. native mutton lambs v. native fine-wool lambs as feeders.	Ohio.
Fitting lambs for market at an early age. (P)	Md.
Hot-house lamb production.	Pa.
Effect of castration upon market lambs. (P)	Md.
Death losses among lambs in feed lots in the San Luis Valley.	Colo.
Pastures for producing native lambs. Pasture and no pasture for both ewes and lambs.	Ind.
Pastures for producing native lambs. Pasture and pasture with grain for lambs suckling ewes.	Ind.
Pastures for producing native lambs. Pasture with grain and no pasture for lambs suckling ewes.	Ind.
Pastures for producing native lambs. Pasture and no pasture for lambs suckling ewes.	Ind.
Pastures for producing native lambs. Pasture and no pasture for ewes suckling lambs.	Ind.
Temporary v. permanent pastures for sheep production and their relation to stomach worm control.	N. C.
Copper sulphate and iron sulphate for lambs.	N. Dak.
Pasturage and silage production for sheep.	Nev.

Swine

Study in the economy of producing feeder hogs.	Miss.
Producing pork for market.	Wash.
Methods of growing pigs.	Pa.

Pig feeding investigations. (6) Methods of growing pigs.	Oreg.
Cost of producing spring pigs.	Wash.
Swine investigations. The wintering of fall pigs.	Okla.
Growing pigs.--To compare the feed cost of growing spring and fall pigs in Delaware. (P)	Del.
A study of the best methods of feeding hogs with the crops produced in the Eden Valley region.	Wyo.
Study of the most efficient method of fattening hogs in the Platte Valley, Wyoming.	Wyo.
Method of feeding swine on pasture.	Mont.
Hog production.--To determine if hogs can be produced economically if pastured in summer and fattened on barley in fall.	Alaska.
Equipment for livestock feeding and management. Self-feeders for swine.	Iowa.
Pig feeding investigations. (5) Fineness of grinding grains.	Oreg.
Swine feeding investigations.--Methods of watering pigs.	Minn.
Cost of keeping brood sows, developing and finishing the market hog, and breeding gilts.	Idaho.
The feeding and management of brood sows on pasture, range, and dry lot.	Va.
Wintering pregnant sows.--Gilts.	Iowa.
Maintaining brood sows.	Pa.
Wintering brood sows. (1) The effect of rations fed during gestation upon litters farrowed and weaned. (2) Comparison of corn alone and corn plus mineral mixture as rations for sows during gestation. The value of adding minerals to suckling rations for pigs produced by corn-alone sows. (3) Comparison of the relative productivity of gilts and mature sows.	Ind.
Hairless pig studies.	N. Dak.
Pig feeding investigations. Cost of fitting show barrows.	Oreg.

Poultry

Poultry farm management studies.	N. Y. Cornell.
Poultry breeding and management investigations.	Mich.
Poultry feeding and management.	Minn.
General tests on current problems as they present themselves.	Md.
A study of commercial management under North Carolina conditions with reference to factors which influence profitable productions.	N. C.
Poultry management.	N. Mex.
Studies of the environmental factors other than diet affecting the livability and growth of the chicks.	Calif.
Feeding.	N. Dak.
A study of the cost and growth of chicks from hatching to 10 weeks of age or more.	Miss.
Poultry. Raising baby chicks.	Alaska.
Investigations in poultry husbandry. Relative economy of day-old and more mature chicks.	Minn.
The comparative cost of producing baby chicks with different types of incubators.	Idaho.
Broiler production.--To determine the most economical age, feeds and nutrient ratio and the best feeding period for finishing broilers for the market.	Ariz.
Poultry experiments. Capon production.	Minn.
Capon production.	Okla.
Feeding.--The value of short-time feeding in confinement of market poultry (crate feeding).	N. Dak.
Poultry shrinkage in dressing.	N. Dak.
The dressing shrink of milk-fattened poultry with particular emphasis upon classes, breeds, and grades of poultry. (P)	La.
The cost of putting pullets into laying.	N. C.
Egg production in poultry.	Nebr.
Time of hatching in relation to egg production.	Mo.

Animal Husbandry--Management--Poultry

Date of hatching.--To determine the most desirable time to hatch chicks of the White Leghorn breed in Arizona.	Ariz.
Influence of time laying starts to future egg production.	Mo.
The relation of the date of sexual maturity to egg production.	Mo.
Correlation of sexual maturity to annual egg production.	Mo.
Early laying maturity in relation to good laying.	Oreg.
Methods of feeding pullets for egg production.	Ind.
Fall and winter management for egg production of early hatched pullets.	N. Y. Cornell.
Artificial illumination for pullets.	Del.
Testing the effect of artificial lighting upon egg production.	Wyo.
Artificial lighting as affecting egg laying.	S. Dak.
The use of artificial light as a means of increasing egg production.	Iowa.
The value of electric lighting of laying houses. (1) Yearly records of cost and production on old birds, Leghorn pullets, and Barred Rock pullets, one-half flock with lights and one-half without in each house.	Oreg.
The value of electric lighting of laying houses. (2) Brooding,- a study of results with different types of brooders; design of new brooders.	Oreg.
A comparison between pullets with and without artificial light for fall and winter egg production.	Miss.
Investigations in poultry husbandry. Light v. no light.	Minn.
Importance of full sunlight for fowls.	N. Y. State.
Breeding for egg production.--Effect of molt on egg production.	Iowa.
Forced molting as an economic factor in egg production. (P)	Ala.
Time of molt as an index to productivity of hens.	Mo.
The effect of ventilation on winter egg production and disease prevention.	Ky.
A study of vaccinating and treating pullets for colic, roup, and worms as a means of increasing fall and winter egg production.	Miss.

Poultry housing.	Ariz.
A study of trap nest production records of pullets for 4 winter months as a guide to their annual production.	Miss.
Influence of feed and management upon production and the hatching quality of eggs.	N. Y. Cornell.
Poultry experiments. Trap nesting and pedigree breeding.	Minn.
Egg-laying contest.	Utah.
Egg-laying competition.--Studies in problems of management especially in relation to controlling disease by management methods.	Md.
Storrs international egg-laying contest.	Conn. Storrs.
Egg-laying contest.	Ariz.
Turkey production.	Nebr.
Incubation, brooding, and management of turkeys.	Ind.
Turkeys - growing project.--Cost of producing turkeys.	N. Dak.
Turkeys - growing project.--The shrinkage in dressing for market to determine whether it is preferable to market alive or dressed.	N. Dak.
The raising of young turkeys by artificial methods. Costs per pound gain.	Minn.
The raising of young turkeys by artificial methods. Artificial brooding.	Minn.
Soil requirements. (Poultry.)	N. Y. State.

Incubation and Hatchability.

Poultry experiments. Incubation and brooding.	Minn.
Chick embryo development during artificial incubation of hens' eggs.	(P) N. Y. Cornell.
Physical-chemical changes in eggs in storage and distribution, and during incubation.	N. Y. Cornell.
Influence of management and feeding on vigor and germ in hens' eggs. (c) The carbon dioxide thrown off by eggs during incubation as a measure of the vigor of the embryos and study of certain factors influencing the production of carbon dioxide.	(A) W. Va.

Incubation and Hatchability. (Cont.)

Artificial incubation of hen's eggs at high altitudes. (P)	Wyo.
Improvement and conservation of farm poultry. Incubation studies, including use of ultra-violet light on eggs and on hens.	Kans.
Incubation, brooding, and management of turkeys.	Ind.
Studies of variation in the hatching qualities of eggs.	Tex.
The hatchability of eggs.	Mass.
Studies of the factors affecting the hatchability of eggs.	Calif.
A comparison of hatching results when eggs are turned once daily and six times daily.	N. C.
Breeding for egg production. Effect of moisture on hatchability of hens' eggs.	Iowa.
The relation of humidity to the hatchability of hens' eggs. (P)	Idaho.
Incubation tests. Moisture and aeration conditions required for hatching hens' eggs at this altitude.	Colo.
Studies on the infertility of eggs.	Mich.
Influence of feed and management upon production and the hatching quality of eggs.	N. Y. Cornell.
Time of hatch.	Okla.
The raising of young turkeys by artificial methods. Artificial hatching.	Nimn.

1/
BREEDING

General

Animal breeding.	Okla.
A study of sires in use on Oklahoma farms.	Okla.
Breeding efficiency studies with special reference to factors affecting the breeding efficiency and their relative importance.	N. C.

^{1/} See also Genetics, p. 245.

Horses

- Horse breeding. Wyo.
- Problems in horse breeding.--Causes of sterility,
length of gestation period, frequency of breeding
periods, factors influencing weight of foals N. Y. Cornell.
- Improvement of native horses. Guam.
- A study of the horses and mules entered in Illinois pulling
contests.--To determine the factors which influence the
pulling ability of horses and mules as measured by the
dynamometer. Ill.
- A study of the horse as a motor. Iowa.

Beef Cattle

- A test of the value of a purebred sire on the offspring from
scrub cattle and grades. La.
- The grading up of south Mississippi native cattle by the use of pure-
bred sires. Miss.
- Beef cattle breeding studies with native cattle. N. C.
- Breeding experiment with purebred Shorthorn cattle.--To
establish a superior dual-purpose type. Tenn.
- Animal breeding.--To determine the hardiness and value as a
beef animal of the Yak-Galloway hybrid. Alaska.
- Beef cattle breeding.--To breed beef cattle suitable to
conditions in Alaska. Alaska.
- The relation of the bodily shape to rate of gain, to dressing
per cent, and to value of the dressed meat in beef cattle. (P) Tex.

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Dairy Cattle

- Dairying. The breeding and feeding of the dairy herd. Oreg.
- Constructive breeding of dairy cattle. Tex.
- Improvement of the University dairy herd. Del.
- Development of the dairy herd. Guam.
- Improvement of native cattle. Guam.
- Cattle breeding.--Comparison of imported with native. Porto Rico.
- Breeding for milk production. Virgin Islands.

1/

Study of the history and development of Station herd.	Md.
Management of dairy herd.--Breeding for type and production.	Minn.
A study of milk production in Virgin Islands cows.	Virgin Islands.
Breeding of a Holstein dairy herd.--Production of daughters being compared with their dams.	N. Dak.
Breeding studies. Continuous use of proved sires to breed cattle that will be pure in their inheritance for high milk and butterfat production.	Idaho.
Herd development with special reference to improvement from the use of better sires.	N. C.
Herd improvement by continued selection of sires.	Ohio.
Proven-sire project.	Oreg.
Cross-breeding experiment.	S. Dak.
Scrub breeding experiment.	Okla.
Investigation of results of use of dairy sires from ancestry of known production in cooperative bull associations. (P)	Idaho.
Grading-up demonstration.	N. Dak.
North Dakota Holstein cattle breeding circuit.	N. Dak.
Milch goat improvement.	N. Mex.

Sheep

The introduction of purebred sheep.	Ky.
Sheep breeding.--To determine the breed of sheep that can be raised economically in Alaska.	Alaska.
Tests with the different breeds of sheep.	S. C.
A study of the adaptation of the Corriedale sheep to southwest Texas conditions.	Tex.
To determine the value of using the Karakul blood on our common breeds and grades of sheep.	S. Dak.
To establish a strain of sheep that will not require docking.	S. Dak.
Breeding efficiency of sheep.	Oreg.

Swine

Breeding purebred swine.	Wyo.
Swine improvement.--To improve or upgrade the native swine of the island.	Guam.
Development of improved swine herd.--To develop a type of hog suited to local conditions.	Guam.
Improving native scrub hogs by the use of purebred boars.	Ala.
Experiments in the "upgrading" and better management of the types of hog found in the mountain districts of Kentucky.	Ky.
Crossbreeding with Duroc and Tamworth hogs.	N. Dak.
Studies in crossbreeding.--To study the effect of crossbreeding swine on the development of pigs.	Ill.
The rates of gain made by purebred and by crossbred pigs.	Md.
Prolificacy of sows and mortality of pigs.	N. Dak.
Correlation between several physical characteristics and prolificacy in brood sows. (P)	Del.
Type test with swine. (A)	Iowa.
Swine feeding investigations. A study of the cost of production and quality of the product from lard type and from bacon type hogs.	Minn.
Swine efficiency test. (1) The effect of maturity and finish on quality of pork from hogs of different types at different stages of finish. (2) Comparison of yields of wholesale cuts from different types of hogs. (3) Determine the rate and economy of gain made by types of hogs that are inadequately represented in Ton Litters. (4) To supplement data secured in the Swine Efficiency Test by securing records on different types of hogs that are inadequately represented in the Ton Litter slaughtering.	Ind.
Swine performance record.--Growth, gains, and carcass quality of litters of different parentage when fed same ration. (P)	Iowa.

Poultry

Improvement of University White Leghorn flock.	Del.
Chicken breeding.--To develop a new variety of chickens adapted to local conditions.	Guam.
Improvement of local chickens.--To upgrade the local type of chickens.	Guam.

Breeding experiments.	N. Y. State.
Poultry breeding experiments.	N. Mex.
Poultry breeding and management investigations.	Mich.
Foundation for experimental poultry work.--To develop breeds and varieties and improve breeding methods for Arizona conditions.	Ariz.
Improvement and conservation of farm poultry. Improvement of mongrel flocks through selected standard-bred cockerels.	Kans.
Pedigreed v. nonpedigreed pullets for egg production.	Miss.
Breeding poultry for egg production.	Mass.
Breeding for egg production.	Utah.
Breeding for egg production. (P)	Wash.
Breeding as affecting egg production.	Tex.
Selection and breeding as factors in increasing egg production.	Minn.
Breeding heavy production strains of standard-bred chickens and maintenance of breed quality.	N. Dak.
The breeding of purebred poultry for high egg production.	Ky.
Age as a factor in poultry breeding.	Mo.
Breed improvement. (a) Selection to increase size of egg in both Barred Rocks and White Leghorns. (b) Selection to eliminate or minimize broodiness in the laying stock. (c) Selection to eliminate or minimize off-colored eggs. (d) Selection to increase or at least maintain vitality because of its bearing on the profitable laying age of the domestic fowl.	Oreg.
Breeding to extend the profitable laying age of the domestic fowl.	Oreg.
To determine relation between utility score card characters of pullets and egg production.	Mo.
The body characters of the domestic fowl as indicative of egg production capacity.	N. Y. Cornell.
Breeding for egg production. Study of types as a basis for selecting pullets for egg production.	Iowa.

- Study of type. (1) Relation between high egg production and type or conformation. Oreg.
- Breeding for egg production. Biometric studies of certain characteristics of White Plymouth Rocks and their relation to egg production. Iowa.
- Egg-laying competition. Relation of body weight to production. Md.
- The correlation of factors of production and egg characteristics in the Single Comb White Leghorn Idaho.
- Influence of selection by external characters upon second-year production of progeny. Okla.
- Crooked breastbones of turkeys. (P) Wyo.

1/
MEATS

General

- Studies on the palatability of meats. S. C.
- Quantitative studies of the factors of color, texture and flavor, and their influence upon the quality and palatability of meat. (P) Mo.
- Bacteriology of meat curing. Iowa.
- Studies in meat curing, covering curing and smoking.--Storing. Iowa.

2/
Beef

- Factors affecting the quality and composition of beef. (P) Ill.
- A study of the influence of age on the quality and palatability of beef. (P) Iowa.
- The relation of the bodily shape to rate of gain, to dressing per cent, and to value of the dressed meat in beef cattle. (P) Tex.
- Dressed beef record. (1) Cost of production. (2) Shrinkage in live weight during shipment. (3) Yield, color, conformation, and grade of dressed beef. Oreg.
- Investigation of the influence of grade or quality in steers upon their (economical) wintering and upon quality of meat produced. (P) W. Va.

1/ See also Home Economics--Foods--Manipulation--Cooking, p. 259.

2/ See also Feeding--Beef Cattle, p. 58.

- A study of the economics of beef cattle farming in Virginia including the economics of feeding and management in relation to the quality and palatability of the beef produced. (P) Va.
- The relation of the sex and age in cattle and the kind, quantity, and quality of feed fed to cattle, to the quality and quantity of carcasses which they produce. (P) Mo.
- Steer calves v. heifer calves. Ohio.
- Beef cattle investigations. Effect of sex upon the quality of beef in so far as it concerns quality in meat investigations. Mich.
- A study of the influence of sex and breeding on production, quality, and palatability of meat of steers and heifers. (P) Miss.
- The influence of sex and of cottonseed meal v. corn on the quality of meat. (P) N. C.
- Factors affecting the production and quality of beef.
Changing grass-fed beef to corn-fed beef. (P) Nebr.
- Shock corn for heifer calves. Ohio.
- The relationship between winter rations for beef steers and the subsequent finishing of beef steers on bluegrass pasture the following season, certain lots receiving grain supplemental feed while on pasture; and the relations of supplemental grain feeds to the economy of beef production and to the quality of the beef produced. Va.
- Relationship of winter rations for beef calves to subsequent carcass development. (a) Wintering calves on native Wyoming feeds. (b) Effects of winter rations for beef calves on subsequent gains on pasture. (c) The influence of barley and sunflower silage upon the quality of meat. (P) Wyo.
- Effect of alfalfa and grain in various combinations on grade, quality, and palatability of beef and on economy of production. (P) Mont.
- Fattening western calves on grass. Ohio.
- Feeding and killing qualities of Brahma, Shorthorn, Hereford, Brahma-Shorthorn, and Brahma-Hereford calves. Tex.
- Influence of feed on color, chemical composition, and cooking quality of meat of grass fat cattle. (P) Kans.

Pork

- Factors affecting the quality (market value) of pork. (P) Ill.
- Soft pork investigations. Ark.
- Soft pork investigations. Calif.
- Soft pork studies. Miss.
- Soft pork studies. N. C.
- Soft pork investigations. Tenn.
- Hogging off crops.--To furnish hogs for soft pork slaughter tests. Ind.
- Hog pasture experiments to determine a suitable sequence of grazing crops for hogs and the necessary supplemental rations of concentrated feeds to produce pork economically, and the relation of pasture crops to the soft pork problem. Va.
- Soft pork investigations. A study of the effect on the carcass of grazing different varieties of soy beans and utilizing hogs of different weights. Miss.
- The relation of peanuts, soy beans, and velvet beans when fed to hogs to softness and other changes in the pork. (A) Ga.
- Effect of peanuts upon the quality of the pork product. (A) Okla.
- Hog feeding experiment.--To determine the effect on the hardness of pork of corn, cowpeas, and soy beans. Miss.
- How soy beans can be fed with corn to avoid soft pork. (P) S. Dak.
- The effects of feeding cull beans on gains in weight and quality of meat produced in hogs. N. Y. Cornell.
- The influence of Canadian field peas on quality of pork produced. Idaho.
- Swine efficiency test. (1) The effect of maturity and finish on quality of pork from hogs of different types at different stages of finish. (2) Comparison of yields of wholesale cuts from different types of hogs. (3) Determine the rate and economy of gain made by types of hogs that are inadequately represented in Ton Litters. (4) To supplement data secured in the Swine Efficiency Test by securing records on different types of hogs that are inadequately represented in the Ton Litter slaughtering. Ind.
- Swine feeding investigations. A study of the production of Wiltshire sides from hogs of the lard and bacon breeds. Minn.

- Swine investigations. Wiltshire side investigations. (P) N. Dak.
- North Dakota Station bacon pig project. N. Dak.
- Possibilities in producing high-quality export bacon in Wisconsin and a comparison of rations for bacon production. Wis.
- A study of the several and various factors which are concerned in the production of superior ham. (P) Md.

Mutton

- The effect of breed of sire upon the production and quality of lamb. (P) W. Va.
- A study of the influence of grass feeding v. grain feeding on the quality and palatability of mutton. (P) Miss.
- Effect of wheat screenings on grade and quality of lamb. (P) Mont.
- The effect of castration and docking of lambs on the quality of carcass produced. N. Y. Cornell.

EGGS

- The determination of the economic possibilities of the storage and keeping qualities of New Mexico eggs. (P) N. Mex.
- Egg preserving. Mont.
- Physical-chemical changes in eggs in storage and distribution, and during incubation. N. Y. Cornell.
- Factors which contribute to that decomposition known as "Grass Eggs" which develops during storage. (P) La.
- Nature and cause of watery whites in eggs. (A & P) Wash.
- Factors affecting the weight of hens' eggs. (A) W. Va.
- Egg investigations. (a) Comparison of shape, size, and color of eggs produced by individual hens, beginning with first egg as a pullet and extending throughout the life of the hen. (b) Comparison of shape, size, and color of the eggs of dam with those of her progeny. N. Dak.

WOOL

Wool and sheep management.	(P)	Utah.
Wool and lambing record. (1) Increasing yield by keeping individual fleece weights.		Oreg.
A technical study of wool and mohair production in relation to range conditions.	(P)	Ariz.
Yield as related to frequency of shearing.		Calif.
Wool and lambing record. (2) Effect of winter rations on body weight and wool production of ewes, birth weight, growth, and final development of lambs.		Oreg.
A study of the effect of individuality, age, feed, qualities, and seasonal conditions and lamb production on weights of fleece.		Mont.
Relation of age of animal to fineness of wool and mohair fiber.	(P)	Tex.
A determination of the relation of skin folds to weight of fleece on Rambouillet sheep.		Tex.
An economic study of shearing sheep once v. twice a year.		Tex.
Wool investigations.		Okla.
Studies in wool and other animal fibers.		Calif.
Determining grades and shrinkages of representative samples of Texas wool and mohair.		Tex.
Wool studies with Rambouillet show sheep.	(P)	Wyo.
Studies in the growth of wool.		Idaho.
Studies in the growth of wool fibers.		Mich.
Studies in the growth of wool and other animal fibers.		
Studies in the growth of wool.		Minn.
Studies in the growth of wool.		Ohio.
Growth of wool studies.		Wash.
Rate of growth of wool.		Wyo.
Studies in the growth of mohair.		Tex.
A study of undesirable fibers of Merino sheep, particularly "chalk", kemp, and "jar" or "beard hairs."		Ohio.

1/ MILK SECRETION

- Curves of the normal production of Holstein-Friesian cows at different ages from records of three herds, one each in Wisconsin, Illinois, and New York. N. Y. Cornell.
- Comparing production records of cows.--Study of the characteristics of lactation curves of Advanced Registry cows. Ill.
- A study of the variations in milk production and in butterfat during entire lactation of individual cows. W. Va.
- Studies of the physiology of lactation. (P) N. Y. Cornell.
- Physiology of milking. Ill.
- Studies in milk secretion. (A) Mo.
- Quantity of milk in udder at milking at milking time. Ill.
- Investigations into causes of variation in milk and fat production. Supplemental feeding of cows while on pasture. Iowa.
- Cottonseed meal studies. (1) Effect of heavy cottonseed meal feeding on reproduction and lactation of dairy cow. (P) N. C.
- Cottonseed meal studies. (3) Effects of heavy cottonseed meal feeding on growth, reproduction, and lactation of dairy heifers when various qualities of roughages are used. (P) N. C.
- Effect of methods of milking on quantity and quality of milk produced. (P) Wash.
- Influence of method of milking on quality and quantity of milk. (P) Idaho.
- Influence of three and two milkings per day on development of cows. N. Y. State.
- Machine v. hand-milking as affecting yield per cow. N. Y. State.
- The study of milking machines. Iowa.
- The immediate influence of various feeds upon the quantity and quality of milk. Minn.
- Effect of temperature and humidity on the milk production of dairy cows. N. J.
- Influence of exposure in winter on the production of milk cows. N. Dak.

1/ See also Animal Nutrition, p. 46, and Feeding, p. 56.

- Investigations into causes of variation in milk and fat production. The effect of cottonseed meal on the composition of butter. Iowa.
- The relation of dairy type to milk production. Pa.
- A study of the relationship of the conformation and physiology of the dairy cow to her producing ability. Iowa.
- Relation of type of dairy cows to milk production. N. Y. State.
- Relation between form and function of dairy cattle. N. Dak.
- The relation of form to function. A study of the relation of conformation and anatomy of the dairy cow to her milk and butterfat producing capacity. Calif.
- Relationship of physical characteristics of the cow's mammary system to production. (P) Wash.
- Relationship of physical characteristics of the cow's mammary system to production. (P) Idaho.
- Studies of the color pigmentation in the skin of dairy cattle. N. J.

B A C T E R I O L O G Y ^{1/}

Studies of bacteriological technic.	N. Y. State.
Standardization of biological strains.	N. Y. State.
Generic types of bacteria.	N. Y. State.
Studies of the Coccaceae.	N. Y. State.
Studies in bacterial physiology.	N. Y. Cornell.
Physiological studies of wild yeasts.	Ill.
A study of the association of alcoholic yeast (<u>Saccharomyces ellipsoideus</u>) and vinegar bacteria (<u>Bacterium pasteurianum</u>) as applied to the making of vinegar as a fruit by-product. (A)	Wash.
Fermentation of certain carbohydrates with the isolation and utilization of the fermentation products.	Iowa.
Studies of pentose-fermenting bacteria.	Wis.
The acetic acid bacteria.	Iowa.
The microflora of moldy silage and hay.	Minn.
Microorganisms in fermentation of silage.	Iowa.

^{1/} See also Dairying--Bacteriology, p. 102, Field Crops--Inoculation of Legumes, p. 199; Food Technology, p. 237; Plant Pathology, p. 330; Soils and Fertilizers--Soil Biology, p. 376; and Veterinary Medicine, p. 405.

B O T A N Y

Plant survey and herbarium.	Kans.
Botanical survey of Maryland.	Md.
A survey of the flora of the Virgin Islands and preparation of an herbarium.	Virgin Islands.
Identification of samples of plants.	Md.
Maryland native grasses.	Md.
Maryland trees, botany of.	Ma.
Mushrooms and toadstools.	N. Y. State.
Minnesota mushrooms. A survey of the wild mushrooms occurring in Minnesota.	Minn.
An investigation of <u>Armillaria mellea</u> .	Calif.
Plant introduction studies.	Tex.
Biological survey.--Native and introduced plants.	N. Dak.
Introduction test of new plants and crops.	S. C.
Crop and variety tests of drug plants.	Oreg.
Annual nature of perennial plants.	Alaska.
A taxonomic study of the white asters of eastern North America.	N. Y. Cornell.
Revision of <u>Calamagrostis neglecta</u> and its relatives.	N. Y. Cornell.
A study of the wild tuber-bearing species of the genus <u>Solanum</u> .	N. Y. Cornell.
A reclassification of Devonian Gymnospermous woods.	N. Y. Cornell.
The make-up and affinities of the flora of the Devonian period.	N. Y. Cornell.
The nature of the flower in the Polygonaceae and allied families.	N. Y. Cornell.
The structure of the Primulaceae.	N. Y. Cornell.
The morphology of the ovary of the Cruciferae.	N. Y. Cornell.

Studies in the indentification of seed of the genus Brassica. Oreg.

The phylogeny of the angiosperms, based on flower anatomy. N.Y.Cornell.

A comparative study of the anatomy and cytology of Hubam sweet clover and the biennial sweet clover from which Hubam has supposedly originated. Iowa.

Anatomy and taxonomy of the parsnip, winter radish, spinach, rutabaga, salsify, and celeriac. Minn.

D A I R Y I N G

BACTERIOLOGY

- Use and value of bacteriological methods in dairy industry.--
Includes study of the plate method, little plate method,
direct count method, methylene blue method, sediment method,
and acidity method. Ill.
- Accuracy of bacterial counts in milk samples. N. Y. State.
- Investigations in dairy bacteriology. Influence of temperature
and time upon the growth of bacteria in various media. Calif.
- Comparison of methylene blue reduction test and other tests
for determining bacterial content of milk. Wis.
- Thermophillic and heat resistant, nonsporulating bacteria in
market milk. (P) Vt.
- Dairy utensil flora studies. (2) Types of bacteria which survive
pasteurization. N. Y. State.
- The lactobacilli of milk. N. Y. Cornell.
- The American high acid organisms found in milk. Iowa.
- Investigations in dairy bacteriology. Bacterial content of
strainer cotton. Calif.
- Investigations in dairy bacteriology. Study of the iron
bacteria in milk. Calif.
- The occurrence and significance of hemolytic streptococci
in milk. Wis.
- Cheese flora studies. N. Y. State.
- Bacteriology of evaporated and condensed milk. Iowa.
- The study of the bacteriology of ice cream. Mich.
- A study of the Torula forms responsible for the yeasty
fermentation in cream. Iowa.

BUTTER

- A study of the production and marketing of butter in
Missouri. (P) Mo.
- The making and storing of butter on the farm. N. Dak.
- Factors influencing the market quality of Minnesota butter. (P) Minn.

- A study of Indiana creamery print butter as collected from the retailer. Ind.
- Moisture contents of hard and soft butters; sampling methods. Vt.
- Influence of acidity of cream on flavor and keeping quality of resulting butter. Iowa.
- A study of commercial neutralizers and their effect on the composition and quality of butter. Ark.
- Influence of starter on the quality of fresh and storage butter. S.Dak.
- A study of the effects of the use of a good starter on the quality of butter made from sour neutralized cream. Ark.
- The loss of fat in churning sweet cream and methods for its control. (1) Methods of testing buttermilk. (2) Methods for reducing the loss of fat in sweet cream buttermilk. Minn.
- Use of citric acid and its salts in (a) butter starters, (b) in acidified milk for infant feeding. Wis.
- Milk ripeness tests.--Application in cheese and butter-making. Vt.
- A study of the enzymes in sweet and sour farm skimmed cream as related to the keeping qualities of butter. (A) Ind.
- Development and control of flavors in butter.--The development of flavors in butter, cream, and starters, and study of methods of controlling flavors and aroma in butter. Ill.
- The quality of butter as influenced by turnip feeding. Calif.
- Studies of butterfat losses in churning. Iowa.

CHEESE

- The factors affecting cheese making under tropical conditions. Porto Rico.
- Manufacture of foreign cheeses. Vt.
- Milk ripeness tests.--Application in cheese and butter making. Vt.
- The manufacture of cheese from pasteurized milk. N. Y. Cornell.
- Studies in the manufacture of Cheddar cheese from pasteurized milk with special reference to the influence of various pure and mixed cultures on flavor. Idaho.
- The use of bacterial cultures to improve the flavor of Cheddar cheese. N. Y. Cornell.

- An attempt to devise a method of packaging Cheddar cheese without melting or grinding. N. Y. State.
- The pasteurization of American cheese in the vat during manufacture. Wis.
- A study of the manufacture of Neufchatel cheese. N. Y. State.
- Use of vacuum for increasing commercial life of cottage and cream cheese. N. Y. Cornell.
- Methods for the use of high-acid milk in the making of cheese. Va.

ICE CREAM

- Study of the principles of ice cream making. Nebr.
- Problems in the manufacture of ice cream. Pa.
- The manufacture of water ices and sherberts. N. Y. State.
- The effect of each ingredient in the manufacture of ice cream. Mo.
- Relation of acidity of ice cream mix to structure, texture, stability, quality, etc., of product. Vt.
- Factors affecting the texture and overrun of ice cream. (P) Wis.
- Experiments in the manufacture of ice cream. A study of the sugars in ice cream. Calif.
- Ice cream studies. The use of cane sugar. Minn.
- A comparison of various ice cream stabilizers. N. Y. State.
- Experiments in the manufacture of ice cream. A study of colloids in ice cream. Calif.
- A study of gelatin properties and test which serve as a basis of determining its value in ice cream. N. Y. State.
- A study of gelatin from the standpoint of its use in ice cream. Ill.
- Influence of certain salts on ease of whipping ice cream mixes. N. Y. State.
- Study of some important factors affecting viscosity of ice cream mix with consequent effect on whipping quality and texture. (P) N. H.
- The effect of different pasteurizing temperatures and different homogenizing pressures on the viscosity of ice cream mixes, and their effect on the frozen product. Ill.

- Influence of varying conditions of homogenization upon ice cream mixes. N. Y. State.
- A study of the physical, chemical, and bacteriological factors causing sandiness and swell in ice cream. Relation of physical, bacteriological, and chemical properties of ice cream mix to swell. (A) Ind.
- Ice cream investigations. Studies of bacterial, mechanical, and temperature factors in the manufacture, transportation, and storage of ice cream. Kans.
- Effect of homogenization on milk, cream, and ice cream.- Iowa.
- Effect of the consistency of the ice cream mix at time of drawing from freezer upon the smoothness of ice cream after hardening. Md.
- Experiments in the manufacture of ice cream. A study of the factors affecting density. Calif.
- Factors influencing volume weight in ice cream. (P) Mass.
- The crystallography of ice cream. Wis.
- Ice content of ice cream. N. Y. Cornell.
- A study of the process of freezing ice cream. Ill.
- A study of methods of flavoring ice cream with cocoa and chocolate. N. Y. State.
- Studying the value of adding vanilla flavoring to chocolate ice cream. Md.
- Use of butter oil in homogenized cream, ice cream, etc. Vt.
- Relation of manufacture and storage of ice cream to development of organic and inorganic substances of a poisonous nature. (P) N. J.

MILK

- Practicability of the production and marketing of special-grade high quality milk under Vermont farm conditions. (P) Vt.
- Composition of cow's milk. Ill.
- The chemistry of milk as a colloidal system. (A) Minn.
- The accuracy of the methods of making composite samples in Minnesota creameries. Minn.

- Factors affecting the quality of milk as shown by the fat test, sediment test, and bacterial count. Nebr.
- Study of the compounds in milk and its products and their changes under the influence of certain classes of bacteria. (A) N. Y. State.
- A study of practical methods of testing milk and its products. N. Y. State.
- Experiments in market milk and testing of dairy products. Comparison of the Babcock test and Mojonnier test for fat in milk. Calif.
- Experiments in market milk and testing of dairy products. Comparison of methods of analyzing cream. Calif.
- Experiments in market milk and testing of dairy products. Analysis of skim milk. Calif.
- Investigations to devise a more satisfactory method for the determination of lactose in milk. Ill.
- Cream line studies with market milk. W. Va.
- Studies of "cream line" formation. Pa.
- Creaming of milk. N. Y. Cornell.
- Use of butter oil in homogenized cream, ice cream, etc. Vt.
- The influence of the breed of cattle, cooling, agitation, etc., upon the creaming properties of milk. N. Y. State.
- Studies on the bacterial flavors and odors of milk. Iowa.
- A physiological chemical study of the absorption of onion and garlic flavor and odor by the milk of cows. (P) Tenn.
- Garlic odor and flavor in milk. (P) Tenn.
- Bitterweed (Helenium tenuifolium) flavor in milk. (P) Tenn.
- A study of wild garlic and its elimination from the milk. W. Va.
- Colorimetric determination of hydrogen ions in milk. N. Y. Cornell.
- Sodium and calcium ions in milk. N. Y. Cornell.
- Viscosity and plasticity of milk and its products. N. Y. Cornell.
- A study of the effects of freezing and storing in a frozen state upon the physical-chemical properties of milk and milk products. Conn. Storrs.

- The deleterious effects of frozen milk on baby chicks and on the marketability of milk and cream. Mo.
- Clarifiers v. filters for market milk. S. Dak.
- Effect of the pasteurizing temperature on milk and on the germs found in milk, (Destruction of germs by pasteurizing temperature.) Ill.
- Effect of homogenization on milk, cream, and ice cream. Iowa.
- Pasteurization of milk contaminated with Mycobacterium tuberculosis (avian) and Bacterium abortus (Bang). Ill.
- A study of colostrum with special reference to the effect of heat (pasteurization) on the physico-chemical, bacteriological, immunological, and nutritional changes. (P) Mo.

MISCELLANEOUS

- Mathematics in dairying. N. Y. Cornell.
- The quinhydrone electrode in the dairy laboratory. (P) Mass.
- Experiments in market milk and testing of dairy products. Testing dairy products. Calif.
- The effect of viscolization of the wheying on properties of cultrued skimmed milk and buttermilk. N. J.
- The preparation of palatable frozen products from cultures of *L. acidophilus*. Iowa.
- Fermented milk drinks.--Bacterial cultures and methods of preparation. Ill.
- The influence of commercial condensing processes upon the vitamin content of cows' milk. (A) Pa.
- Factors concerned in the coagulation of milk by heat. Wis.
- Powdered milk studies. Minn.
- The properties of casein. N. Y. State.
- Skim milk curd preservation. Ariz.
- Studies of milk bottle breakage. N. Y. Cornell.
- A study of the Universal washer-sterilizer for cleaning milking machines. Wis.

- A study of washing powders for dairy use. (P) Mass.
- The use of chemical sterilizers in dairy industry.
(Sterilization of utensils by chemical sterilizers). Ill.
- The organization and construction of creameries. Iowa.
- Control of city milk supplies. N. Y. State.
- Dairy and creamery sanitation in relation to products. (A) Mich.
- Inspection of cream stations and examination of cream testers. Ky.

ECONOMIC ENTOMOLOGY

ECOLOGY

Climatic factors limiting the distribution of economic insects.	(A)	Mont.
Climate and insect investigations.		N. J.
Relation of temperature to insect life.	(A)	W. Va.
The study of weather, natural enemies, and other factors in relation to aphid control.		Ohio.
An investigation to determine the causes of the periodical recurrence of insect pests as scourges.		Mo.
Climate and injurious insect investigations.		Kans.
Biology (ecological studies) of certain North Carolina Homoptera.	(A)	N. C.
A systematic biological and ecological study of the Hemiptera of Delaware.	(P)	Del.
Ecology of the alfalfa weevil (<u>Phytonomus gyll</u>).	(P)	Wyo.
Ecological investigations of apple insects.		N. Y. State.

TAXONOMY

Collection and identification of insects attacking vegetables.		Ohio.
Handbook of North American dragonflies.		N. Y. Cornell.
Taxonomy of Thysanoptera.		N. Y. Cornell.
Systematic and biological studies of the thrips (Thysanoptera).		N. Y. Cornell.
Leafhoppers of Idaho.--A systematic study and collecting of species.		Idaho.
A systematic, biological, and ecological study of the Hemiptera of Delaware.	(P)	Del.
The collection and identification of aphids.		Ohio.
Biology and systematics of subterranean aphids.		Ohio.
Embryology of <u>Estigmene acrea</u> .		N. Y. Cornell.
The genus <u>Eurema</u> .		N. Y. Cornell.

- Revision of the general Melinaea, Phyciodes, Chlosyne, and Ecpantheria. N. Y. Cornell.
- Eleodes beetles.--Collecting and classifying all species in the State. Idaho.
- Taxonomy of Pselaphidae. N. Y. Cornell.
- Wing venation of the Hymenoptera. N. Y. Cornell.
- Biologic and taxonomic studies of the Mutillidae (Hymenoptera). Minn.
- The Culicidae (mosquitoes) of eastern United States. N. Y. Cornell.
- Systematic and biological study of scale insects of Mississippi. (A) Miss.

1/
FIELD CROP INSECTS

Alfalfa Insects.

- Insects injurious to alfalfa. Nev.
- Insects injurious to alfalfa. Kans.
- Alfalfa weevil. Minn.
- Alfalfa weevil.--Control by dusting from an airplane. Idaho.
- Breeding and liberation of parasites.
- The Chalcis fly in alfalfa seed. (P) Utah.

Cotton Insects. (See also Insects with Many Hosts--Aphids, p. 126.)

- Boll weevil investigations. Okla.
- The ecology of cotton insects. (4) Relation of vegetative characters and fruiting habits of the cotton plant to abundance of the boll weevil. (5) Hibernation of the cotton boll weevil. (P & A) Ark.
- A study of the hibernation of the boll weevil under Georgia conditions. (P) Ga.
- Boll weevil hibernation and emergence studies. Miss.
- Biology studies of the boll weevil with particular reference to field migration and hibernation. S. C.

1/ See also Insects with Many Hosts, p. 126.

Cotton Insects. (Cont.)

Hibernation and dispersion of the cotton boll weevil in Tennessee.	(A)	Tenn.
Control of cotton insects. The boll weevil.		Fla.
Methods of controlling the boll weevil.		Ga.
Control of the cotton boll weevil.		Ark.
Cotton boll weevil control.		Ala.
Boll weevil control by use of airplanes.		Tex.
Field tests of proprietary poisons for the boll weevil.		S. C.
Use of various arsenical poisons other than calcium arsenate in the control of the boll weevil.		S. C.
A study of the ingestion of poison by the cotton boll weevil.	(A)	Tex.
Hibernation of the cotton flea hopper and the boll weevil.		Tex.
Biology and control of the cotton flea hopper.	(P)	S. C.
Life history of the cotton hopper (<u>Psallus seriatus</u> Reut.) and its control.		Tex.
Cotton red spider control.		Ark.
Preliminary studies of pink bollworm.		Virgin Islands.

Corn Insects.

Effect of insects attacking seed corn in ground and young plantlets; of treating seed at time of planting with fungicides or insecticides; insects attacking growing corn.		Ill.
Insect pests of corn and grain sorghums while in storage.		Tex.
Investigation of the biology and control of the corn weevil.	(P)	S. C.
Field crop insects of southern Kansas. Life histories of kafir ant, seed-corn maggot, and certain sorghum-infesting insects.		Kans.
Cereal and forage insects including jointworms, corn earworm, stalk borer (life history, habits, control).		Va.
Life history and control of the southern corn root worm.		Ala.

Corn Insects. (Cont.)

Biology of the southern corn root worm (<u>Diabrotica</u> <u>duodecimpunctata</u>).	(P & A)	Ark.
Field crop insects, corn borer project.		Wis.
The European corn borer.		Ohio.
An investigation of the biology and control of the European corn borer (<u>Pyrausta nubilalis</u> Hbn.).	(P)	Pa.
Studies of the European corn borer		Ill.
European corn borer investigations.		Ind.
Life history of the European corn borer in New Hampshire.	(A)	N. H.
Corn breeding in relation to the European corn borer infestation and control in Ohio.	(P)	Ohio.
A study of the European corn borer and its control.		Mich.
Control of the European corn borer		Conn. State.
European corn borer.		Guam.
Cornstalk borers.	(P)	Iowa.
Bionomics of the rough-headed cornstalk beetle (<u>Euethiola</u> <u>rugiceps</u> Loc.).	(P & A)	Ark.
Effect of chinch bugs on corn.		Ill.
Investigation of the ecology and control of the corn billbug.	(P)	S. C.
Seasonal history of the corn earworm.		Iowa.
A study of the life history of the corn earworm.		Va.
Biology and control of the corn earworm.	(P)	Md.
Corn earworm investigations.		Kans.

Wheat Insects.

Wheat insect pest survey.		Iowa.
Studies of the Hessian fly and the development of control measures.		Ill.
The fall history of the Hessian fly.--Limits of the brood or broods if more than one.		Ky.

Wheat Insects. (Cont.)

Corroborative studies.--To test the efficiency and practicability under Indiana conditions of controls reported elsewhere, including control of the peach tree borer, San Jose scale, oyster shell scale, cucumber beetle and aphid, cabbage maggot, onion maggot, onion thrips, and Hessian fly. Ind.

Hessian fly investigations. Life history, control measures, and wheat-varietal resistance. Kans.

An investigation of the Hessian fly resistant qualities of different varieties of wheat. Mo.

Miscellaneous insects. Wheat jointworms (Harmolita grandis, H. vaginicola, H. tritici). Utah.

Potato Insects.

Potato insects. N. Y. State.

Control of insects affecting potato vines. Ohio.

Insecticides.--Potato spraying. Minn.

Potato beetle control. Mont.

Studies of the potato flea-beetle (Epitrix cucumeris). Colo.

Truck crop insects and their control. (Potato flea beetle and cabbage maggot). Wis.

Biology and control of the potato tuber moth. (P) Md.

The potato scab gnat (Phyxtia scabiei). Ohio.

Life history and injury of the potato leafhopper, Empoasca mali. Minn.

Investigation of the potato millipede (Brachyiulus pusillus). Ohio.

Miscellaneous Field Crop Insects.

Field crop insects. N. Dak.

Field crop insects. Minn.

Insect pests of corn and grain sorghums while in storage. Tex.

Cereal and forage insects including jointworms, corn earworm, stalk borer (life history, habits, and control). Va.

Miscellaneous Field Crop Insects. (Cont.)

Field crop insects of southern Kansas. Life histories of kafir ant, seed-corn maggot, and certain sorghum-infesting insects.	Kans.
Sugar cane borer.	Guam.
Investigations of insects injurious to tobacco in Wisconsin.	Wis.
Insects affecting rice and soy beans.	La.
Life-history studies of the velvet bean caterpillar (<u>Anticarsia gemmatilis</u>). (A)	Fla.
Biology of the rice water weevil (<u>Lissorhoptrus simplex</u> Say). (P&A)	Ark.
The Florida flower thrips (on citrus, peanuts, beans, egg-plants, and forage crops). (A)	Fla.

1/

TRUCK CROP INSECTS

Bean Insects. (See also Insects with Many Hosts--Aphids, p. 126.)

Studies of the bean jassid (<u>Empoasca mali</u>). (A)	Fla.
Belted bean beetle (<u>Diabrotica balteata</u>). (A)	Ala.
Mexican bean beetle.	N. Y. State.
Mexican bean beetle.	Ohio.
Ecology and control of the Mexican bean beetle. (P)	S. C.
Life history, habits, and control measures for Mexican bean beetle under North Carolina conditions.	N. C.
The Florida flower thrips (on citrus, peanuts, beans, egg-plants, and forage crops). (A)	Fla.

Root Crop Insects.

Control of the carrot rust fly.	N. Y. State.
Studies on the carrot rust fly.	N. Y. State.
The turnip webworm (<u>Hellula undalis</u>). (A)	Ala.
Investigation of the sugar beet leafhopper. (P)	Idaho.

1/ See also Insects with Many Hosts, p. 126 and especially Subterraneous Insects, p. 128.

Root Crop Insects. (Cont.)

Sugar beet leafhoppers. (P) Utah.

Miscellaneous insects.--Sugar beet root maggot (Tetanops
aldrichi Hendel). Utah.

The entomology and parasitology of curly leaf of sugar beets. (A) Calif.

Eggplant and Pepper Insects.

Comparison of dusts and sprays for control of insects
attacking the eggplant. Ill.

The Florida flower thrips (on citrus, peanuts, beans, egg-
plants, and forage crops). (A) Fla.

Pepper weevil investigations (Anthonomus eugenii Cano). Calif.

Cucurbit Insects.

Injurious insect pests of melon and related crops. Mo.

Cucumber insects. Minn.

Cucumber insects. N. Y. State.

An investigation of the control of insect pests of cucurbitaceous
plants with special reference to the striped cucumber beetle.
N. Y. Cornell.

The biology, life history, and control of the spotted cucumber
beetle (Diabrotica duodecimpunctata). La.

Corroborative studies.--To test the efficiency and practicability
under Indiana conditions of controls reported elsewhere, in-
cluding control of the peach tree borer, San Jose scale, oyster
shell scale, cucumber beetle and aphids, cabbage maggot, onion
maggot, onion thrips, and Hessian fly. Ind.

Control of greenhouse red spider and powdery mildew of
cucumbers by a combination spray. Mass.

Control of red spiders on cucumbers in greenhouses. Mass.

Life history and control of the pickle worm. Ala.

An investigation of methods for controlling the chinch bug. Mo.

Control of squash vine borer. Conn. State.

Miscellaneous insects.--Squash bug (Anasa tristis De Greer). Utah.

Onion Insects.

- The onion maggot. Ohio.
- Onion maggot fly, Hylemyia antiqua (Meigen). Oreg.
- Truck crop insects and their control.--Onion maggot investigations. Wis.
- The onion maggot (truck crop insects).--Study cull onion method of onion maggot control and Orthodichlorobenzene emulsion as compared with control by Bordeaux oil emulsion. Ill.
- Corroborative studies.--To test the efficiency and practicability under Indiana conditions of controls reported elsewhere, including control of the peach tree borer, San José scale, oyster shell scale, cucumber beetle and aphids, cabbage maggot, onion maggot, onion thrips, and Hessian fly. Ind.
- Control of onion thrips. Mich.
- Control of onion thrips. Mass.
- Control of onion thrips. Ill.
- Onion thrips.--Experiments in control with poisoned materials applied as a covering to the onion leaves. Idaho.

Tomato Insects.

- A study of the tomato fruit worm (Heliothis obsoleta), including history, host plants, feeding habits, and control. La.
- Tomato fruit worm.--Biology and control. S. C.

Cabbage Insects.

- Cabbage insects. N. Y. State.
- An investigation of the life history, habits, and methods of control of the cabbage maggot (Phorbia brassica Bouche) on cruciferous crops. Pa.
- The cabbage maggot. Ohio.
- Control of maggots in cabbage seed beds. N. Y. State.
- Experiments with baits attractive to the cabbage maggot fly. Conn. State.
- Truck crop insects and their control. Potato flea beetle and cabbage maggot. Wis.
- Corroborative studies.--To test the efficiency and practicability under Indiana conditions of controls reported elsewhere, including control of the peach tree borer, San José scale, oyster shell scale, cucumber beetle and aphids, cabbage maggot, onion maggot, onion thrips, and Hessian fly. Ind.

Miscellaneous Truck Crop Insects.

- The larger plant bugs on citrus, pecan, and truck crops. (A) Fla.
- Vegetable insect investigations. N. J.
- The relation of Dipterous insects to the spread and development of soft rot of vegetables. Minn.
- Investigation of some truck crop insects. Ky.
- Study and control of truck crop insects in California. Calif.
- Control of the corn earworm on truck crops. W. Va.
- Important insects affecting garden crops. (1) Harlequin cabbage bug (Murgantia histrionica). (2) Cabbage aphid (Aphis brassicae). (3) Cabbage butterflies (Pontia spp.). (4) Cabbage loopers (Plutia sp.). (5) Flea-beetles. (6) Onion thrips. (7) Cutworms. (8) Squash bug (ansatristsis). (9) Cucumber beetles (Diabrotica spp.). (10) Possible new pests. N. Mex.
- Life history and control of the spinach leafminer. Conn. State.
- Control of the spinach maggot. N. Y. State.

1/
FRUIT AND NUT INSECTS

General.

- Orchard insects. W. Va.
- Orchard insect investigations. N. J.
- Control of fruit insects. Mich.
- Insecticides.--Orchard spraying. Minn.
- An investigation to determine what insects are injurious to nursery stock in the State, their life histories, distribution, injury, and methods of control. Mo.
- Deciduous fruit insects. Ohio.
- Insects of deciduous fruits.--Seasonal history and control. S. C.
- Corroborative studies.--To test the efficiency and practicability under Indiana conditions of controls reported elsewhere, including control of the peach tree borer, San Jose' scale, oyster shell scale, cucumber beetle and aphid, cabbage maggot, onion maggot, onion thrips, and Hessian fly. Ind.

General. (Cont.)

- The spider mites as fruit pests. N. Y. State.
- An investigation of the life history, habits, and control of the imported red spider. Pa.
- An investigation of the factors involved in the control of red spider. Calif.
- The European red mite. Ohio.
- San José scale: Life history and control. N. Mex.
- San José scale: Control in southern Idaho by use of oil sprays. Idaho.
- A study of the economic scale insects of Arizona. (P) Ariz.
- Dates of hatching of scale insects and when to spray for them. Mass.
- Syneta leaf beetle, Syneta albida Lec. (Control studies). Oreg.
- Study of the life history of the western green June beetle. (P) Ariz.
- Fruit-tree leaf-roller: Control experiments with various sprays under Idaho conditions. Idaho.
- The natural control of the tent caterpillar. N. Y. Cornell.

Apple Insects. (See also Insects with Many Hosts--Aphids, p. 126.)

- Apple-insect investigations. Calif.
- Apple-insect investigations. Ark.
- Studies on apple insects. N. Y. State.
- Orchard dusting.--Comparison of dusting and spraying for the control of insects and diseases on the apple. W. Va.
- Dusting and spraying project. (1) Control of apple scab, codling moth. (2) "Finish" of pears. (3) Effect of casein spreader with lime sulphur and lead arsenate sprays on apples. (4) Effect of lime sulphur on the set of apples. (5) Use of ferrous sulphate lime sulphur combination. (6) Comparative fungicidal effectiveness of various spray materials. Mich.
- Codling moth.--To determine relative normal abundance and responsibility for fruit injury of various species of fruit worms in different parts of the State and to secure accurate and definite data on comparative life and seasonal history of various species correlated with weather and relation of above data to control of various species. Ind.

Apple Insects. (Cont.)

- Western Kentucky codling moth investigations. Ky.
- An investigation of the biology and control of the codling moth (Carpocapsa pomonella Linn.). (P) Pa.
- Codling moth control and biology. Ohio.
- Codling moth biology, ecology, and control. (P) Kans.
- Biological control of the codling moth. Calif.
- Bionomics and control of the codling moth in Delaware. (P) Del.
- Codling moth.--Life cycle studies in southwestern Idaho. Control investigations. Idaho.
- A study of the life cycle of the codling moth and the best time and method of applying insecticides for controlling it. Mo.
- An investigation of the life history and control of the codling moth. Va.
- Codling moth studies, Carpocapsa pomonella (Linn.).--Life habits, attractants, influence of climatic factors. Oreg.
- Codling moth studies. Life history study as a basis of an effective spraying program for control. Oreg.
- Studies of the life history of the codling moth and methods of control. Ill.
- Investigations of the life history of the codling moth in New Mexico, with special reference to means of supplementing and partially eliminating the present intensive spraying practices by attacking both the larva and the adult of the codling moth by new methods. (A) N. Mex.
- Codling moth control by means of an egg parasite. (P) Colo.
- Codling moth control. Attractants for trapping and control with oils and arsenical sprays. Also small egg parasites. Colo.
- Codling moth control. Mich.
- Codling moth control. Calif.
- Control of codling moth by spray. N. H.
- Orchard spraying for the codling moth. Nebr.
- Substitutes for lead arsenate in codling moth control. Oreg.

Apple Insects. (Cont.)

- Comparison of varying strengths of lead arsenate with and without spreader in codling moth control. Oreg.
- Bionomics and control of the apple maggot, Rhagoletis pomonella Walsh. Iowa.
- Insects of orchard and best means of combating.--Apple maggot. Minn.
- The life history, habits, and control of the plum curculio on the apple. Conn. State.
- Control of the plum curculio in apples. Mass.
- Blister mite control on apples and pears. Oreg.
- A study of the life history of the red-banded apple leaf roller and experiments on methods for its control. Va.
- A study of the leaf rollers injurious to the fruit and foliage of the apple in Pennsylvania. Pa.
- Leafhoppers affecting apple. Ohio.
- Ecological relations of the leafhoppers of the apple to their hosts and parasites. (P) Va.
- Round-headed apple borer. N. Y. State.
- The giant apple-tree root borer (Prionus spp.). N. Mex.
- Control of apple and peach tree borers. W. Va.

Cherry Insects. (See also Insects with Many Hosts--Aphid, p. 126.)

- Cherry-maggot control. Mich.
- Cherry maggot and its control. N. Y. State.
- Bionomics and control of ground cherry worms. Iowa.
- Studies of the cherry snout beetle (Tachypterus sp.). Colo.

Citrus Insects. (See also Insects with Many Hosts--Aphids, p. 126.)

- Control of scale insects on citrus. Tex.
- The larger-plant bugs on citrus, pecan, and truck crops. (A) Fla.
- The Florida flower thrips (on citrus, peanuts, beans, egg-plants, and forage crops). (A) Fla.

Peach Insects.

- Orange Tortrix investigations. Calif.
- Study of Laspeyresia molesta in Maryland. (A) Md.
- The oriental peach moth (Laspeyresia molesta). Ohio.
- Oriental fruit moth.--Life history of the oriental fruit moth (Laspeyresia molesta Busck) and methods of control. (A) Ala.
- Life history and methods of control of the oriental peach moth, Laspeyresia molesta. Conn. State.
- An investigation of the life history, habits, and methods of control of the oriental fruit moth (Laspeyresia molesta Busck). Pa.
- An investigation of methods for the control of the oriental peach moth. Va.
- Further studies on the control of the oriental peach moth. Md.
- Control of peach and apple tree borers. W. Va.
- Paradichlorobenzene treatment for the control of the peach borer, the pear root aphid, the woolly apple aphid, and other root-infesting insects. Calif.
- Studies on paradichlorobenzene for peach borer. N. Y. State.
- Corroborative studies.--To test the efficiency and practicability under Indiana conditions of controls reported elsewhere, including control of the peach tree borer, San José scale, oyster shell scale, cucumber beetle and aphid, cabbage maggot, onion maggot, onion thrips, and Hessian fly. Ind.
- The peach and prune root borer. Oreg.
- Studies of the plum curculio as a pest of peaches. Ill.
- Peach-deforming plant bugs. N. Y. State.

Pear and Persimmon Insects.

- Studies on pear insects. N. Y. State.
- Control of pear psylla. N. Y. State.
- Control of pear psylla. Mich.
- Blister mite control on apples and pears. Oreg.
- Persimmon psylla and other persimmon insects.--Biology and control. S. C.

Plum Insects. (See also Insects with Many Hosts--Aphids, p. 126.)

- The plum tree borer (*Synanthedon pictipes* G&R). (A) S. Dak.
- The peach and prune root borer. Oreg.
- Prune thrips, *Taeniothrips inconsequens* (Uzel). Oreg.

Small Fruit Insects.

- Small fruit insect investigations. N. J.
- Strawberry insects. Iowa.
- The strawberry root weevil. (A) Mont.
- Strawberry root weevil control. (P) Oreg.
- Strawberries. (3) Root weevil control. Oreg.
- Miscellaneous insects.--Strawberry root weevil
(*Otiorhynchus ovatus* Linn.). Utah.
- The strawberry root louse. Ala.
- Control of strawberry and raspberry insects. Ill.
- Life history, habits, and control of raspberry insects. N. Y. State.
- Insects affecting the blueberry. (P) Me.
- Chemical investigations in connection with experiments in
control of the blueberry maggot with special reference to
the possibility of employing attractants in capturing and
killing the adult flies. Me.
- Injurious and beneficial insects affecting the cranberry. Mass.
- Cranberry investigations. (1) Insect pests of the cranberry. Wash.
- Life history of the imported currant worm. Conn. State.
- The gooseberry borer, *Xylocrius agassizi* (Lec.). Oreg.
- A study of the bionomics and control of the grape leafhopper,
Erythroneura comes. (P) Del.
- Tests of paradichlorobenzene for control of grape root worm. N. Y. State.
- Control of grape berry moth. N. Y. State.

Nut Tree Insects.

Investigation of pecan insects.	(P)	S. C.
Insects affecting pecan trees.		Fla.
A systematic and biological study of insects affecting the pecan.	(A)	Miss.
Field study of the insects attacking the pecan, including control measures.		Fla.
The larger-plant bugs on citrus, pecan, and truck crops.	(A)	Fla.
Life history and methods of controlling the pecan twig girdler (<u>Oncideres texana</u>).		Tex.
To determine the life history, ecology, and control of the pecan weevil (<u>Balaninus caryae</u> Horn.)	(A)	Ala.
Coconut scale.--Control of coconut scale.		Guam.

1/
FOREST INSECTS

Miscellaneous studies of insects affecting forest and shade trees.		N. Y. Cornell.
Shade and forest insects.		Ohio.
Shade tree insects.		N. Dak.
Shade tree insect investigations.		Kans.
Shade tree insects. The bagworm, fall webworm, and walnut caterpillar.	(A)	Ark.
Insect defoliators on forest trees. The spruce budworm on spruce and fir.		Minn.
Insect defoliators of forest trees. Jack pine sawfly.		Minn.
Insect defoliators of forest trees. The spruce budworm on Jack pine.		Minn.
Insect defoliators of forest trees. The larch sawfly.		Minn.
The boxwood leaf miner.		Md.
Life history, habits, and control of the imported birch leaf miner, <u>Fenusa pumila</u> Klug.		Conn. State.
A biological study of a leaf miner of Norway spruce.		N. Y. Cornell.

1/ See also Insects with Many Hosts, p.126.

- The bronze birch borer (Agrilus anxius). Minn.
- The biology and control of the dogwood scale (Chionaspis lintneri). N. Y. Cornell.
- The life history and control of the hickory gall aphid. N. Y. State.
- Experiments in the control of the maple bladder gall. N. Y. Cornell.
- The biology and control of the pine leaf scale (Chionaspis pinifoliae). N. Y. Cornell.
- Life history and control of the white pine weevil in New Hampshire. (P) N. H.
- A biological study of the pitch twig moth (Rhyacionia comstockiana Fern). N. Y. Cornell.
- Control of the gipsy moth. Conn. State.
- Control of brown-tail moth by spray. N. H.
- Effect of physical factors upon insects in freshly-cut logs. Minn.

1/ GREENHOUSE INSECTS

- Greenhouse insect investigations. N. J.
- Miscellaneous greenhouse insects. Ohio.
- The biology and control of some greenhouse pests. Md.
- Greenhouse insects.--Chrysanthemum midge (Diarthronomyia hypogae), red spider (Tetranychus telarius), and cyclamen mite (Tarsonemus palliosus Banks). Minn.
- Experimental work in the control of red spider and whiteflies in greenhouses. N. Y. Cornell.
- Greenhouse whitefly. Ohio.
- Greenhouse thrips. Ohio.
- The greenhouse leaf tyer (Phlyctaenia ferrugalis). Ohio.
- Fungus gnats of the genus *Sciara* in relation to greenhouse plants and mushrooms. N. Y. Cornell.
- An investigation of the life history, habits, and methods of controlling insects affecting mushrooms. (P) Pa.

1/ See also Insects with Many Hosts--Aphids, p. 126.

1/ INSECTS OF ORNAMENTALS

- Insects affecting ornamentals. Ohio.
- The study of pests of ornamental plantings. Mich.
- Bulb insects. (a) Narcissus fly, Merodon equestris (Fabr.).
(b) Lesser bulb or onion fly, Eumerus strigatus (Fallen). Oreg.
- The biology and control of Deperone leaf miners.--The chrysanthemum gall midge. Md.
- The biology and control of a new leaf miner of the larkspur. N. Y. Cornell.
- Studies of the rose-snout beetle (Rhynchites wickhami). Colo.
- The control of the tarnished plant bug on dahlias. N. Y. Cornell.
- Control of cyclamen mite. Ill.

1/ HOUSEHOLD AND STORED-PRODUCT INSECTS

- The control of household insects. Mich.
- The use of chloropicrin either alone or in combination with paradichlorobenzene or carbon tetrachlorid for fumigating grain in elevators. Minn.
- Insects infesting stored-food products. Measure for protecting flour and other cereals from insect attack. Minn.
- A study of the rôle of temperature and humidity in the development of insects in flour and other cereal products while in storage. (A) Minn.
- Insects infecting stored-fruit products. The protection of dried fruits from insects. Minn.
- Insects injurious to market milk. N. J.

INSECTS ANNOYING MAN AND ANIMALS

- Insects affecting the health of animals.--Screen wire durability tests. Wyo.
- Insects and parasites affecting livestock. Tex.
- A study of the Tabanidae or horseflies of Minnesota. Minn.

1/ See also Insects with Many Hosts, p. 126.

Biology of three biting flies of the family Tabanidae:

Tabanus sulcifrons Macq.), (T. annulatus Say), and
Chrysops pikei Whitney). (P & A)

Ark.

The Tabanidae (horseflies).

N. Y. Cornell.

Hippelates fly investigations.

Calif.

The Simuliidae (black flies).

N. Y. Cornell.

The Siphonaptera (fleas).

N. Y. Cornell.

Anthropods injurious to poultry production.

N. J.

Mosquito studies.

Mont.

Elimination of the mosquito nuisance in salt marshes.

Conn. State.

Mosquito control.

N. J.

Malaria-mosquito investigations.--To devise means of combating
 malaria in those sections of the State where this disease is
 a serious handicap to agricultural development.

Calif.

Tick investigations.

Mont.

The Inodoidae (ticks) of eastern United States.

N. Y. Cornell.

INSECTS WITH MANY HOSTS

Aphids. (See also Ecology, p. 109, Taxonomy, p. 109, and insects
 attacking special crops.)

Plant louse investigations.

(A)

Okla.

Plant louse investigations.

(A)

Colo.

Insects of orchard and best means of combating.--Plant lice.

Minn.

Ecological and life history studies of aphididae with
 especial reference to the alternate food plants of
 migratory species.

(A)

Me.

Ants in their relation to plant lice.

Colo.

An investigation of the life history, habits, and methods of
 control of the plant lice (aphididae) affecting truck crops.

Pa.

A study of the biological control of aphids in
 greenhouses.

N. Y. Cornell.

Aphids. (Cont.)

- Biology and systematics of subterranean aphids. Ohio.
- Cotton aphid.--To study the ecology of the cotton aphid and to develop methods of control including life history, host plants, and natural and artificial control. (A) Ala.
- Experiments in the control of cotton aphid (Aphis gossypii Glover), including such biological and ecological studies as serve to affect its control. (P) Miss.
- The bean aphid. Ohio.
- Investigation of pea aphid. Wis.
- Apple insects.--Apple plant lice. (A) Md.
- Biology and control of the apple-infesting aphids. (P) W. Va.
- The control and biology of apple aphids. Ohio.
- Control of apple aphids. W. Va.
- Apple aphids.--Anuraphis roseus Baker and Aphis pomi de Greer. (Control studies). Oreg.
- Aphids. Control on prunes and apples. Idaho.
- The woolly aphid (Eriosoma lanigerum) (A) Tenn.
- Study of effect of crown gall and woolly aphid on yield of apples. Tenn.
- A study of the migration, subsequent spread, and injury of the woolly apple aphid, Eriosoma lanigerum Hausm. (P) Va.
- Investigation of the cherry aphid and its relation to the growing of cherries in Door County. Wis.
- The green citrus aphid (Aphis pomi). (A) Fla.
- An investigation to determine how sap-sucking insects injure plants. Mo.

Orthoptera.

- Grasshoppers. (A) Mont.
- Grasshoppers of subfamily Cyrtacanthacrinae of South Dakota. (A) S. Dak.
- A study of the egg of the injurious grasshoppers of Iowa. Iowa.
- Grasshopper control. Minn.

Orthoptera. (Cont.)

Grasshopper control.		Colo.
Grasshopper control.		Nebr.
Life history studies of the common field cricket. (<u>Gryllus assimilis</u>).	(A)	S. Dak.
Practical control of the common field cricket, <u>Gryllus assimilis</u> Fabr.	(P)	N. Dak.

Subterranean Insects.

Soil-infesting insect investigations.		N. J.
Insects injurious to roots.		Kans.
Investigations in soil treatment of subterranean insects.	(A)	Wash.
Soil insects.--White grubs.		Minn.
White grub investigations.		Iowa.
The garden centipede (<u>Scutigera immaculata</u>).		Ohio.
A study of the control of millipedes affecting truck crops.		Pa.
Life history studies of cutworms.	(A)	Mont.
The life history of several common cutworms.		Nebr.
The habits, behavior, biology, and control of cutworms.		N. Y. Cornell.
Cutworms affecting field and garden crops.	(P)	Me.
Biology and control of garden cutworms.		Mass.
The wireworm.		Wash.
Wireworms.	(A)	Mont.
A study of the life histories, methods of control, and relation to soil type of destructive wireworms.		Iowa.
An investigation of the life history, habits, and methods of control of wireworms (Elateridae) affecting truck crops.		Pa.
Wireworm control.	(P)	Me.
Wireworms. Experiments in control.		Idaho.
Control of wireworms in tobacco.		Conn. State.
Earthworms and their effect on soils.		Mont.

Miscellaneous.

A study of the Asiatic beetle, <u>Anomala orientalis</u> .	Conn. State.
Control of the Asiatic beetle.	Conn. State.
Control of the Japanese beetle.	Conn. State.
<u>Mineola scitulella</u> . Life history studies and control experiments.	Idaho.
Symphilids, <u>Scutigerella immaculata</u> (Newport).--Habits and control studies.	Oreg.
Effect of leafhoppers on red clover.	Ill.
Miscellaneous insects.--Ants.	Utah.
Leaf mining insects.	N. Y. Cornell.
Leaf roller investigations.	Oreg.

1/
INSECTICIDES AND FUMIGATION

Studies of the physical and chemical properties of insecticides and fungicides.	(A)	Oreg.
An investigation of insecticides.		Mo.
Investigation of materials which promise value in insect control.		Mass.
The effect of insecticides and fungicides on plants.	(A)	N. H.
Study of derris and related insecticides for control of external parasites of domesticated animals.		Minn.
Testing of fluosilicates as insecticides and the manner of their action.	(P)	Tenn.
Fruit insect investigations.--Comparison of dry and liquid insecticides in controlling fruit insects.		Kans.
Tests of insecticides on garden insects.--Data on toxicity to plants and insects of arsenicals other than arsenate of lead, or other stomach poisons.		Ill.
The toxicity of insecticides.	(A)	S. C.
The toxicity of insecticidal compounds of arsenic.		Wash.
Substitutes for lead arsenate (arsenicals without lead and nonarsenicals).		S. C.

1/ See also Agricultural Chemistry--Regulatory--Miscellaneous, p. 2 .

Factors influencing burning of foliage by Paris green.	Mont.
A study of the Xanthates with special reference to their use as insecticides as well as soil sterilizers.	Calif.
How to prepare from leaf tobacco or waste a dependable infusion for spraying.	Ky.
Oil sprays. (A)	Wash.
Oil sprays. Physical and chemical properties and toxicity to insects and plants. (P)	Mont.
Oil sprays.	Calif.
Oil sprays. Investigations in preparation and use of oil sprays in the control of orchard insects and of their effects upon the trees.	Idaho.
Oil sprays for household insects.	Ind.
Cooperative oil and spray project.	Oreg.
The effect of oil emulsion on scale insects and aphid eggs.	Md.
Determining the value of lubricating oil sprays to San Jose scale in southern Oregon.	Oreg.
A study of California petroleums and derivatives with reference to toxicity to insects and their reaction to plants.	Calif.
The chemical, physical, and insecticidal properties of commercial pine oils and creosotes and their action on various insects as well as on plants and the germination of seed. (A)	Md.
An investigation of the value and possible limits of the use of oils in the dormant and delayed dormant sprays.	Pa.
Determination of best strength of lime sulfur.	Mass.
Sulfur and sulfur compounds as fungicides and insecticides.	Tex.
The toxic effect of colloidal and precipitated sulfur.	Calif.
A comparison of the effectiveness of chemically pure and commercial carbon bisulphide.	Md.
Biological effects of certain ovicides.	N. H.
Root injury to cruciferous plants:--To determine if root injury to cabbage, kohlrabi, and cauliflower caused by larvae of insects can be prevented by use of repellants.	Alaska.

Relative qualities of insect attraction and repellance of various organic chemicals.	(A)	Mont.
Investigations of adhesiveness of insecticides.		N. Y. State.
Investigations of dusts and stickers, spreaders and dilutants for spraying and dusting mixture.	(P)	N. J.
A study of the efficiency of spreaders and stickers.		Md.
Control of injurious insects by dusting.		N. Y. State.
Control of insects by means of impregnation of the sap of plants with poisonous substances.	(A)	W. Va.
European fly sprays.		Ind.
Cattle fly sprays.		Ind.
An investigation of the methods and material for the fumigation of greenhouses.		N. Y. Cornell.
A study of fumigation processes.		Calif.

PARASITES OF INSECTS

Introduction and study of beneficial insects.		Fla.
Beneficial insect investigations.		Calif.
Studies in insect parasitisms.		N. Dak.
Introduction, propagation, and establishment of two tachinid parasites (<u>Digonocheta setipennis</u> and <u>Rhacodineura antiqua</u>) of the European earwig (<u>Forficula auricularia</u>).		Oreg.
The parasites and symbionts of insects.		Minn.
Entomogenous fungi. Diseases of citrus aphids.		Fla.

INSECT SURVEY

Insect pest survey.		Ark.
Insect survey of Connecticut.		Conn. State.
Insect survey of Delaware.	(P)	Del.
Insect pest survey.		Ind.
Indiana insect survey.		Ind.

Insect survey of Montana.	Mont.
Biological survey.--Insect and plant pest survey of Oklahoma.	Okla.
Insect record.	N. H.
An insect survey of the Arnot forest.	N. Y. Cornell.
Insect collection and miscellaneous insect studies.	Ariz.
Insect collection.--University Farm.	Minn.
Inspection of orchards and nurseries.	Conn. State.

MISCELLANEOUS

Investigations and control of injurious insects, mammals, and birds.	Nebr.
Insect pests and plant diseases and their control.	Fla.
Miscellaneous insect investigations.	Tex.
Miscellaneous entomological investigations.	W. Va.
Insectary work.	Minn.
Resistance of crop plants to insect injury. (P)	Kans.

BEE CULTURE

Miscellaneous investigations pertaining to beekeeping.	Calif.
Bee investigations.	N. J.
Beekeeping investigations.	Tex.
A systematic study of the bees of North Carolina.	N. C.
Inspection of apiaries.	Conn. State.
Honey bees.	Guam.
Selective breeding of bees. (P)	Wyo.
Artificial fertilization of queen bees. (A)	Okla.
Investigations in queen breeding and raising. Research into the possibilities of Carniolan queens for Minnesota.	Minn.
Investigations in queen breeding and raising.	Minn.

- Investigations of queen breeding and raising.--Demonstrating the possibility of commercial queen raising in Minnesota, its conditions, possibilities, and cost. Mont.
- Investigations in queen breeding and raising. A study of the laying capacity of queens. Minn.
- Management of bees. Model apiary. Minn.
- Management of bees. Influences of sizes and types of hives on honey production and production of brood. Minn.
- Testing of two- and three-pound packages of bees in reference to amount of honey produced. N. Dak.
- Management of bees. Studies in imported pound packages and nuclei for commercial production of honey. Minn.
- Winter protection of bees. Md.
- Bee investigations. Kans.
- Wintering of honey bees. N. Y. Cornell.
- Wintering of bees. (P) Wyo.
- Factors which involve successful wintering of bees in Wisconsin. (P) Wis.
- A study of the factors involved in wintering bees, with special reference to North Dakota conditions. N. Dak.
- Wintering honey bees in North Carolina. N. C.
- Management of bees. The influence of various kinds of natural and artificial foods in successful wintering of bees. Minn.
- The utilization of carbohydrates by the honey bee. N. Y. Cornell.
- Studies in pollen. A study of pollen substitutes. Minn.
- Studies in pollen. A study of gathering and storing natural pollen through winter for spring use of bees. Minn.
- Time and labor factors involved in gathering, ripening, and storing honey by honey bees. Iowa.
- Factors influencing nectar secretion. N. Y. Cornell.
- High-altitude nectar secretion. Wyo.
- Correlation of weather conditions with nectar flow. N. Dak.

Meteorological influence on honey production.	Iowa.
Management of bees. Summer and winter records of bees in different localities.	Minn.
A survey of the beekeeping industry in West Virginia. (1) The honey flow in West Virginia.	W. Va.
An investigation of the production of honey and honey plants in Iowa.	Iowa.
Bee and honey survey of Minnesota.	Minn.
A survey of the honey-producing plants of the State.	N. C.
Studies in pollen. A study of the actual benefit derived from bees as pollinators of plants.	Minn.
The relation of tongue length and body size to the production of honey.	Iowa.
A study of the bacterial flora of the intestinal tract of insects. A study of the bacterial flora of the intestinal tract of the honey bee.	Iowa.
Bee disease inspection.	Minn.
Foulbrood inspection.	Tex.
Control of foulbrood of bees.	Conn. State.
American foulbrood control. (a) Disinfection of foulbrood combs. (b) Extracting combs as carriers. (c) Wild honey bees as carriers and their elimination. (d) The possibility of immunizing bees to American foulbrood. (P)	Wyo.
Distribution of European foulbrood.	N. Y. Cornell.

ECONOMIC ZOOLOGY

1/

BIRDS

The migration of birds through central New York.	N. Y. Cornell.
Bird banding.	Mich.
A monograph on the horned lark.	N. Y. Cornell.
Effect of insecticides on birds.	Okla.
Investigation and control of injurious insects, mammals, and birds.	Nebr.
Crow control.	Okla.
Artificial propagation of diving ducks.	N. Y. Cornell.
Plumages and molts of water fowl.	N. Y. Cornell.

FISH CULTURE

The productivity of Minnesota lakes in fish and fish food. Classification of Minnesota lakes by physical characters.	Minn.
Selective breeding experiments with trout.	N. Y. Cornell.
The nutrition of fishes.	N. Y. Cornell.
Propagation of natural food organisms for hatchery fishes.	N. Y. Cornell.
Control of parasites of fishes in the hatchery.	N. Y. Cornell.
Shellfish investigations.	N. J.
The growth of young oysters on pure cultures of food organisms.	N. J.
On the abundance, distribution, and destructiveness to oyster larvae of the ctenophore, <u>Mnemiopsis leidyi</u> .	N. J.

CONTROL OF RODENTS

Rodent investigations.	Nebr.
Injurious mammal investigations.--Life histories of and control measures for injurious mammals, especially the mole and pocket gopher.	Kans.

- Miscellaneous investigations in economic zoology: Biology of introduced rats in California. Calif.
- Study of the life history of range rodents - jack rabbits. (A) Ariz.
- Development of rodent control. Ind.
- The control of rodents. N. Y. Cornell.
- Controlling rodent pests in Indiana. Ind.
- Control of pine mice in celery trenches. Ohio.

NEMATODES

- Nematode control. Ohio.
- Investigation of the use of chemicals for eradication of nematodes and parasitic fungi in greenhouse soils. (P) Mass.
- Alfalfa nematode studies. Colo.
- Peaches.--A study of nematode control. Miss.
- Investigation of root-knot nematode and its relation to various host plants. Ga.
- The root-knot nematode (Caconema radicicola Greef). Calif.
- Root-knot nematode control. (P) Tenn.

MISCELLANEOUS

- The zoogeography of Washington. Wash.
- Faunal survey - species occurring, distribution, ecology, and economic relations. S. C.
- Biological survey of the Lloyd-Cornell Reservation at McLean, New York. N. Y. Cornell.
- Economic status of fur-bearing animals in Minnesota. The status of fur farming in Minnesota. Minn.
- Revegetation and maintenance of California foothill range lands. (d) Management studies of deer in California. Calif.
- Miscellaneous insects. (a) Insectivorous reptiles. Utah.
- Miscellaneous investigations in economic zoology: Control of snails and slugs. Calif.
- Poisonous arthropods. Ark.
- Investigation and control of injurious insects, mammals and birds. Nebr.

F I E L D C R O P S

GENERAL STUDIES

Cereals

Corn investigation.	W. Va.
Wheat investigation.	W. Va.
Rice investigations in the Imperial Valley.	Calif.
Investigations of rice in the Sacramento Valley.	Calif.
Tests of small grains and field peas.	N. Y. Cornell.

Fiber and Oil Crops

Fiber crop investigations.	Calif.
Hemp investigations.	Wis.
Flax investigation project.	S. Dak.
Investigations with flax. (c) Economic importance of flax compared with cereals.	Wis.
Comparative trials with farm crops at the branch stations. (4) Flax.	Miss.

Tobacco

A field study of tobacco production in Massachusetts.	Mass.
Tobacco investigations. (1) To determine the possibilities of the culture of <i>Nicotiana rustica</i> and other types for commercial insecticide purposes. (2) To determine whether or not commercial leaf production and curing can be done successfully under irrigation in this region.	N. Mex.
Tobacco.--To determine the possibility of growing bright leaf tobacco profitably.	Miss.

Root Crops

Potato investigations.	W. Va.
Potato investigations.	S. Dak.

Sugar Crops

Cooperative sugar beet experiment.	N. Mex.
Beet investigations.--Sugar beet investigations.	Calif.

Legumes and Forage Crops

Annual forage plant investigations.	Alaska.
Forage crop investigations.	Wash.
Forage investigations.	Wash.
Forage crop investigations.	Kans.
Forage problems.	Wash.
Forage crop investigations.--Late-planted annual forage crops.	Minn.
Forage crops investigations.--Succulent crops.	Okla.
Legume investigations.	Calif.
A study of miscellaneous legumes.	Ark.
Investigations in farm crop production.--Legumes.	Minn.
Winter legumes.	Ala.
Winter legume studies.	Fla.
Forage crop investigations. (a) Alfalfa and red clover and production.	Idaho.
Red, mammoth, alsike, and white clover investigations. Red mammoth, alsike, and white clover productions.	Iowa.
Sweet clover investigations.	Okla.
Volunteer sweet clover.	N. Dak.
Work with <u>Trifolium pratense</u> .	N. Dak.
Forage crop investigations.--Soy beans and vetch beans.	Minn.
Miscellaneous.--Peanuts, sorghums, legumes.	Okla.
Miscellaneous.--Kafir and cowpeas.	Okla.
Annual forage crops.--Millets, Sudan grass and other sorghums.	Okla.

1/
BREEDING

General

Plant breeding.	Okla.
Crop breeding by hybridization and selection.	S. Dak.
The effect of genetic equilibrium and selection upon plant breeding practice.	Ma.
Improved seeds.	Colo.

2/
Cereals

General.

Cereal breeding.	(P)	Mo.
Cereal breeding.	(P)	Utah.
Variety testing, breeding, acclimatization, and cultural studies of small grains.		Nebr.
Cereal investigations, including variety tests, cultural treatments and selections of corn, wheat, rye, oats and barley; and the propagation of promising strains of these cereals.		Va.
Cereal investigations. Varietal tests of wheat, oats, barley, grain sorghums and corn. Cereal breeding. Seed treatment tests, and method and time of seeding tests with cereals.		Kans.
Investigations in cereal breeding.--To determine the best methods of technic in plant breeding.		Minn.
Investigations in cereal breeding.--Tests of new varieties in rod rows.		Minn.
Crop improvement.		Tex.
Breeding improved varieties of small grains.		Ga.
Small grain investigations. (b) Cereal breeding and selection in the nursery.		Idaho.
Cereals. (1) Breeding and selection of pure strains of wheat, barley, oats and rye.		Oreg.
Small grain breeding.--For developing better strains of oats and wheat.		Ark.

1/ See also Genetics, p. 245.

2/ See also Disease Resistance, p. 151.

General. (Cont.)

Crop improvement. Breeding experiments with wheat, oats, corn, and sorghums. Kans.

Small grain improvement. (a) Wheat, (b) oats, (c) barley, (d) rye, sorghum, flax, and miscellaneous grains. Idaho.

Improvement of oats, barley, wheat, and rye by straight selection and cross hybridization followed by selection. Wis.

Improvement of wheat and rye. Ill.

The culture and improvement of small grains, including wheat, oats, barley, and rye. Ariz.

Barley. (See also Cereals--General, p. 139.)

Barley breeding. Mich.

Barley breeding. Alaska.

Cereal breeding investigations. (2) The development of high-yielding and disease-resistant varieties of barley. Oreg.

Barley.--Hybridization for smooth awns on winter barley. Md.

Improvement of barley. (1) To produce by breeding methods and selection, high yielding strains of barley which are (a) barbless, (b) disease resistant, and (c) stiff-strawed. (2) To study the mode of inheritance of certain characters. Ill.

Barley.--Variety testing and improvement of varieties by crossing and selection. Ohio.

Investigations in cereal breeding.--To produce improved varieties of barley. Minn.

Breeding improved strains of varieties of barley. N. Y. Cornell.

Barley breeding.--Selection. S. C.

Barley production and storage investigations. Barley variety and breeding studies. Iowa.

Buckwheat. (See also Cereals--General, p. 139.)

Buckwheat investigations.--Including variety tests, rate and date of seeding, and breeding for improvements. W. Va.

Corn. (See also Cereals--General, p. 139.)

Corn breeding.		Mo.
Corn breeding.	(A)	Miss.
Corn breeding.		Mich.
Corn breeding.		La.
Corn breeding.		Ark.
Corn breeding.		Pa.
Improvement of farm crops by breeding and selection. Corn breeding.		Ind.
Corn breeding by selection.		Ma.
Corn breeding experiments.		Tenn.
Corn breeding investigations. Corn improvement at Waseca.		Minn.
Corn improvement.	(P)	Iowa.
Experiments with corn.--Corn improvement.		Minn.
Investigations in farm crop production. Corn improvement.		Minn.
Corn breeding and improvement. (a) Cultural experiments, (b) breeding and improvement.		Idaho.
Corn breeding.--Developing new varieties, testing new strains, and increasing seed supplies.		Miss.
Breeding corn for yield.		Ky.
Breeding improved varieties of corn.		Ga.
Corn breeding investigations.--The production of improved varieties of corn for northern Minnesota.		Minn.
Corn breeding investigations.--The production of improved varieties of corn for west central Minnesota.		Minn.
Improvement of corn through selection and breeding. (P)		Fla.
Corn breeding by means of controlled pollination. (P)		Kans.
Breeding improved varieties of corn by the recombination of inbred lines. (P)		Mo.

Corn. (Cont.)

- Corn breeding, by inbreeding and selection in fertilized lines. N. J.
- Breeding of field corn.--To determine the most dependable criteria for elimination in selfed lines and to develop a high-yielding variety of corn adapted to Porto Rico. Porto Rico.
- Vegetable breeding: Tomatoes, sweet corn, squash, popcorn. N. Dak.
- Corn. Crossing ears of the same variety and of distinct varieties. Ohio.
- Effect of ear-row selection on corn and of detasseling backward or poorly eared stalks on yields. R. I.
- Corn. Hybridization. Md.
- Improvement of yield and uniformity of corn and a study of the methods whereby this can be effected. (P) Wis.
- The effect of selection on certain chemical and physical characters of the corn plant. Ill.
- Breeding corn for protein. S. Dak.
- Corn.--To determine whether the gain in kernel weight in corn incident to fertilization by foreign pollen represents a net gain in yield or merely a gain for these kernels at the expense of those not resulting from fertilization by foreign pollen. Ohio.
- Corn breeding in relation to the European corn borer infestation and control in Ohio. (P) Ohio.
- Corn breeding. (a) Studies on development of cold-resistant corn. (b) Development of early maturing varieties for northern Wisconsin. Wis.
- Popcorn. Variety character record and ear-row work. Mich.
- Oats. (See also Cereals--General, p. 139.)
- Oat breeding. Mich.
- Oat breeding.--Selection. S. C.
- Oats breeding.--To improve the varieties of oats. Select best heads from best strains for the region. Alaska.
- Oat breeding nursery. Mont.
- Oat breeding tests.--Studying varieties and new strains, and making selections. Miss.

Oats. (Cont.)

A study of oat varieties with a view to their improvement. Pa.

Oat improvement. Pa.

Improvement of oats.--To determine whether high-yielding, resistant strains of good quality can be isolated by breeding methods and selection, and to study the mode of inheritance of characters. Ill.

Oat investigations and oat improvement. Tex.

Investigations in cereal breeding.--To Produce improved varieties of oats. Minn.

Breeding improved strains of varieties of oats. N. Y. Cornell.

Rice. (See also Cereals--General, p. 139.)

Rice improvement and methods of production tests. Tex.

Rye. (See also Cereals--General, p. 139.)

Rye breeding. Mich.

Rye breeding.--Selection. S. C.

Breeding improved strains of varieties of rye. N. Y. Cornell.

Rye head selection. Mich.

Sorghum. (See also Cereals--General, p. 139.)

Sorghum breeding investigations. Okla.

Wheat. (See also Cereals--General, p. 139.)

Wheat breeding. Mich.

Wheat breeding. Tex.

Wheat breeding.--To develop better varieties of wheat. Select the best heads from best strains. Hybridize different strains to develop more productive types. Alaska.

Wheat breeding at Madison Station; wheat breeding in northern Wisconsin; variety tests of winter wheat and spring wheat. Wis.

Wheat breeding in the Gallatin Valley. (P) Mont.

Breeding work with wheat. Ky.

Cooperative wheat breeding. Mont.

Wheat. (Cont.)

Wheat improvement.	Pa.
Improvement of wheat and soybeans by breeding and selection. (P)	Ind.
Wheat breeding investigations, including the improvement of commercial varieties by (1) the pure line method of breeding; (2) hybridization and subsequent selection.	Mo.
Wheat.--Varieties, pure line selections and cultural work.	Ohio.
Investigations in cereal breeding.--To produce improved varieties of spring wheat.	Minn.
Cereal breeding at the Nephi Dry Farm Substation.--Pure line and hybridized strains of wheat.	Utah.
Wheat.--Pure line selection and hybridization as methods of improvement.	Ohio.
Wheat breeding. Selection.	S. C.
Wheat.--Head selection and head-to-row tests with wheat.	Md.
Wheat.--Hybridization.	Md.
Breeding winter wheat for hardiness.	Wyo.
Investigations in cereal breeding.--To produce hardy winter wheats of high yielding ability and high milling quality.	Minn.
Wheat.--Correlations between length of head, number of spikelets, number of tillers, etc., and yield of wheat.	Ohio.
Row wheat trials.	N. Dak.
Breeding improved strains of varieties of wheat.	N. Y. Cornell.

Fiber and Oil Crops
(See also Disease Resistance, p. 151.)

Cotton.

Cotton breeding investigations.	Okla.
Cotton breeding tests.	S. C.
Cotton breeding.--Developing new varieties, testing progenies, and increasing seed supplies.	Miss.
Cotton breeding.--Selection, increase, and distribution of seed, using Cleveland and Lone Star varieties.	Miss.

Cotton. (Cont.)

- Breeding improved varieties of cotton. Ga.
- Production and improvement of cotton varieties suitable to Tennessee conditions. (P) Tenn.
- Development of improved strains of cotton. Ark.
- Seed selection studies with Mexican Big Boll cotton for securing information on the value of selection and for supplying improved seed to growers from the Central and Branch Station farms. N. C.
- Utility breeding of Acala, Cook, and Bottoms cotton varieties to try to secure high-yielding strains having a good quality staple. Ala.
- Correlation study in cotton of various botanical and agronomic characters with special reference to yield. (P) Okla.
- Cotton breeding. (P) La.
- Genetics of cotton. Variety testing and breeding. Fla.
- Relation of oil and nitrogen content of cottonseed to other plant characters. (A) Ark.

Flax.

- Investigations with flax. (a) Flax breeding. Wis.
- Flax.--Breeding and cultural work. Mich.

Hemp.

- Hemp breeding experiments. Va.

1/
Tobacco

- Tobacco breeding and variety tests. Ma.
- Improvement of shade-grown tobacco. Conn. State.
- Selection and cross breeding of tobacco. (a) Development of improved types of Connecticut Havana tobacco. Wis.
- Production of high nicotin tobacco. Tex.
- Growing tobacco of high nicotin content for use as an insecticide. N. Y. State.

Root Crops 1/Artichokes.

Cultural investigations and breeding work with artichokes. Mich.

Potatoes.

Potato breeding. N. Y. Cornell.

Potato breeding.--Potato breeding methods. Minn.

Potato breeding. Wash.

Potato breeding. Wash.

Potato breeding. Utah.

Potatoes.--Tests of crosses for the U. S. D. A. R. I.

Root crop investigations. (a) Tuber-unit potato breeding. Idaho.

Potato investigations. (b) Tuber-unit potato improvement. Idaho.

Potato selection. Mich.

Varietal improvement of potatoes by selection. Mich.

Potato investigations. (2) Hill selection work. Oreg.

Potatoes.--Variety tests and selection of high-yielding strains by "tuber-unit" method. Wyo.

Comparison of healthy potato strains, commercial and tuber-line. (P) Me.

Potato selection for seed purposes. Development of superior disease-free Triumph strains by tuber indexing. Nebr.

Potato breeding.--A study of the relative productivity of certified seed stocks and of the factors affecting the production of good seed. Minn.

Production of disease-free Triumph potatoes. N. Dak.

Selection and propagation of high-yielding strains of Bliss Triumph and Green Mountain potatoes. Va.

Improvement of potato seed. N. J.

Improvement of Late Red potatoes. Del.

Potatoes.--Improvement of McCormick. Md.

1/ See also Sugar Crops--Sugar Beets, p. 147.
See also Disease Resistance, p. 151.

Potatoes. (Cont.)

- A study of the production, selection, and improvement of seed stock of potatoes. (P) Mont.
- Environmental factors. Potato seed selection on irrigated land. Mont.
- Potato seed selection work on irrigated land. Mont.
- Experiments to determine the effect of selection within a variety and the effect of size and shape and time of seed cutting on uniformity and yield of the potato; also to determine the relation between spent vigor and disease. (P) Me.
- Investigations in potato culture.--Potato breeding plots. Minn.

Sweet Potatoes.

- Sweet potato breeding work.--To develop a sweet potato variety of as good or better quality and of greater prolificity than the variety commonly grown in the Islands. Virgin Islands.
- Plant breeding.--Plant selection work with sweet potatoes. Miss.
- Seed selection of sweet potatoes. N. C.
- Sweet potato.--Selection for improved strains. Miss.

1/
Sugar Crops

Sugar Beets.

- Miscellaneous field studies.--Sugar beet breeding. Utah.
- Sugar beet breeding. Mich.
- Seed production. (a) Sugar beets.--Selection and improvement of sugar beets for high sugar content by propagation of mother beets showing highest percentage of sugar. Idaho.

Sugar Cane.

- Breeding of sugar cane.--To determine the best criteria for early elimination in cane seedlings and to develop a high-yielding variety of sugar cane resistant to mosaic, dry top rot, and the cane borer. Porto Rico.

1/ See also Disease Resistance, p. 151.

Sugar Cane. (Cont.)

Selective cane breeding.--To develop improved strains of the standard varieties of sugar cane, with reference to high yield of cane, high sucrose content and resistance to drought, disease, and insects. To produce a cane from standard varieties that will prove more profitable to the grower than are the common strains being grown at the present time.

Virgin Islands.

Sugar cane breeding experiments.--To develop varieties that are adapted to the dry weather conditions of St. Croix, and which ratoon well and yield heavy tonnages of cane with high sucrose content, and making an increased amount of sugar per acre over that now made from the varieties commonly grown.

Virgin Islands.

1/
Legumes and Forage Crops

General.

A study of varieties, culture, and improvement of forage crops, including sorghums and grasses.

Ariz.

Alfalfa.

Alfalfa breeding.

Mich.

Alfalfa breeding.--To obtain strains of alfalfa suitable to Alaskan conditions.

Alaska.

Alfalfa.--Improvement by selection.

Wyo.

Study of pure lines in common and hairy Peruvian alfalfa.

(A) Ariz.

Alfalfa.--Production of local strain of alfalfa for seed production and resistance to leaf spot disease. Comparison of local strain with other regional strains for yield, hardiness, and freedom from disease.

Ohio.

Forage investigations. (e) Alfalfa improvement - (1) breeding, (2) hard seed study, (3) identification studies with seedlings.

Idaho.

Beans.

Bean breeding.

Mich.

Bean breeding for interior conditions in California.

Calif.

Beans.--Breeding and varietal testing.

Mich.

Clover.

- Improvement of farm crops by breeding and selection.--Clover breeding. Ind.
- Improvement of red clover. Ky.
- Crimson clover breeding. Mich.

Cowpeas.

- Breeding improved varieties of cowpeas. Ga.
- Selection and propagation of strains of cowpeas. Va.
- Cowpeas.--Increasing and distributing seed of a variety with superior fruiting qualities. Miss.

Peanuts.

- Selection and propagation of strains of peanuts. Va.
- The study and improvement of the peanut. Tex.
- Plant breeding.--Peanuts and Napier Grass. Fla.

Soy beans.

- Soy bean breeding. Iowa.
- Improvement of wheat and soy beans by breeding and selection.(P) Ind.
- Improvement of the soy bean. Ill.
- Soy bean breeding. N. C.
- Breeding improved varieties of soy beans. Ga.
- Soy bean breeding test.--Developing new strains. Miss.
- Soy bean selections. (P) La.
- Soy bean breeding and cultural studies. Wis.
- Soy beans.--Variety, cultural, and breeding work. Ohio.
- Breeding and fertilizer experiments with soy beans. (P) Del.
- Soy bean oil studies. (P) Miss.

Sweet Clover.

- Sweet clover breeding. Mich.
- Improvement of the quality of sweet clover by selection and breeding. N. Dak.
- Breeding of miscellaneous field crops.--Improvement of sweet clover. Minn.
- Hubam clover breeding. Iowa.
- Study of an aberrant sweet clover form and increase of seed of the same. N. Dak.
- Development of a Siberian variety of white sweet clover. S. Dak.
- A study of the pollinating agents of sweet clovers (Melilotus alba and M. officinalis) in South Dakota with reference to seed production. (A) S. Dak.

Grasses.

- Investigations on improvement of blue grass for pasture and seed production. Ky.
- Improvement of orchard grass (Dactylis glomerata). Ky.
- Studies on the variations in orchard grass, with the view of selecting valuable strains. Va.
- Timothy breeding and selection. N. Y. Cornell.
- Timothy improvement. Pa.
- Perennial grasses.--New strains of timothy developed at the cooperative breeding station at Elyria. Ohio.
- Plant breeding.--Peanuts and Napier grass. Fla.
- Breeding miscellaneous field crops.--The mode of pollination of grasses and the effects of self-fertilization. Minn.
- Small grain investigations.--A study of variability in grasses and legumes. Okla.

Silage Crops.

- Breeding corn for silage purposes. N. Y. Cornell.
- Breeding sunflowers for silage purposes. N. Y. Cornell.
- Sunflower investigations, (including a trial of types, selection for improvement, and rate of seeding.) W. Va.

Silage Crops. (Cont.)

Sunflower breeding.	(P)	Mont.
Investigations in farm crop production.--Sunflower improvement.		Minn.
<div style="text-align: center;">1/ Disease Resistance</div>		
Varieties resistant to disease.		Md.
The development of disease-resistant varieties of farm crops.-- Varietal resistance of wheat, barley, rye, and oats to root and culm rots.		Minn.
The development of disease-resistant varieties of farm crops.-- development of desirable agronomic types of barley resistant to <u>Helminthosporium sativum</u> .		Minn.
Cereal breeding investigations. (2) The development of high- yielding and disease-resistant varieties of barley.		Mont.
Breeding corn for disease-resistance and yield.		Ill.
Testing and multiplication of disease-resistant seed corn.		Ind.
The development of disease-resistant varieties of farm crops.-- The development of pure lines of corn resistant to smut.		Minn.
The development of disease-resistant varieties of farm crops.-- The development of varieties of corn resistant to root rot and stalk rots.		Minn.
A study of corn diseases with special reference to disease resistance and environmental influence (Type of disease and time-of-planting study of corn).--Root rot and ear rot.		Ill.
Cereal breeding investigations. (3) The development of high- yielding and disease-resistant oat varieties.		Oreg.
Study of resistance to stem and crown rust in selections of varieties of oats, particularly Green Russian.		N. Dak.
Investigation of oats with reference to resistance of varieties to rust and rust infection.		Iowa.
Cereal diseases. A study of resistance and susceptibility of varieties and strains of oats to crown rust (<u>Puccinia coronata</u>) and blast.		Miss.
The development of disease-resistant varieties of farm crops.-- The development of varieties of oats resistant to black stem rust.		Minn.

1/
See also Genetics--Inheritance of Disease Resistance, p. 252.
See also Plant Pathology--Disease Resistance, p. 358.

- Breeding disease-resistant wheat. Mich.
- Cereal breeding investigations. (1) The development of high-yielding and disease-resistant varieties of wheat. Oreg.
- Practical wheat breeding.--Crossing selected varieties and hybrids for increased yield and disease resistance. N. Dak.
- Cereal investigations. (2) Nursery trials with hybrids from smut-resistant wheats. Oreg.
- The development of disease-resistant varieties of farm crops.--
The development of varieties of wheat resistant to bunt. Minn.
- The development of disease-resistant varieties of farm crops.--
The resistance of wheat varieties to wheat scab. Minn.
- The development of disease-resistant varieties of farm crops.--
The development of rust-resistant varieties of wheat. Minn.
- Wheat rust studies with reference to resistant varieties and strains. N. C.
- Spring wheat.--Breeding wheat for rust resistance. Wyo.
- A study of resistance of winter wheat to leaf rust. (P) Kans.
- A determination of the differential reaction of strains within a variety of wheat to physiological forms of Puccinia graminis tritici. (A) Nebr.
- A genetical, physiological and pathological study of the cotton plant, with special reference to cotton wilt and the breeding of wilt-resistant varieties. (P) Ark.
- The selection of wilt-resistant strains of cotton for Arkansas. Ark.
- Cotton wilt test.--A comparison of varieties on wilt-infected soil. Miss.
- Cotton investigations.--A cooperative study of anthracnose resistance in cotton. (A) Miss.
- The development of disease-resistant varieties of farm crops.--
Flax wilt. Minn.
- The development of disease-resistant varieties of farm crops.--
The development of varieties of flax resistant to rust. Minn.
- Breeding tobacco for resistance to root rot and high yield. (P) W. Va.

Developing and testing strains of tobacco resistant to black root rot.		Conn. State.
Selection and crossbreeding of tobacco. (b) Production of root-rot-resistant types of tobacco.		Wis.
Development of black-root-resistant strains of burley tobacco.	(P)	Ky.
Disease resistance in sweet potatoes.	(A)	Ala.
Cane diseases.--To study varietal resistance and susceptibility of native and foreign grown canes to mosaic diseases.		Miss.
Sweet potato diseases.--A study of varietal resistance and susceptibility to stem rot, surface rot, and black rot.		Miss.
Breeding field and garden beans for disease resistance.		N. Y. Cornell.
Clover.--Plant selection for disease resistance.		Ohio.
The development of disease-resistant varieties of farm crops.-- The production of high-yielding, rust-resistant timothy.		Minn.
Resistance of crop plants to insect injury.	(P)	Kans.

VARIETY TESTS

General

Varietal tests.		Minn.
Trials of new crop plants.		Ga.
Testing varieties of farm crops.		Ind.
Variety trials of grain and forage crops.		N. Dak.
Introduction and trial of new forage plants including variety test work with general farm crops.		Fla.
Forage, truck, and field crop trials.		Fla.
Tests of species and varieties of field crops.		N. J.
Crop variety tests.		Tex.
Variety tests.--To study varieties of all field, garden, truck, and fruit crops.		Miss.
Cooperative experimental crops project. Varietal and cultural tests with most of the important crops, obtaining data for particular conditions and localities.		Ariz.

- Variety and cultural experiments with farm crops.--To determine the varieties and cultural methods best adapted to the conditions present in the Haleakala Homestead District, Island of Maui, T. H. Hawaii.
- New or uncommon crop investigations. Preliminary adaptation studies. Iowa.
- A study of varietal adaptations and fertilizer requirements on Red River Valley soils. Tests of varieties of farm crops. Minn.
- Varietal tests of small grains, corn and forage crops. Further trials in 1/40 acre plots of best productions from the nursery. Minn.
- High altitude crops. Colo.
- Miscellaneous crop nursery and demonstrations. Mont.
- Cooperative nursery trials. Mont.
- Forage and seed crop investigations. (17) Nursery trials with Lotus corniculatus, L. uliginosus, Dalea, "Eureka clover," Astragalus stipulatus, kudzu, artichokes, Geranium sp., Erodium sp., sweet Sudan grass, Zig-Zag clover, Shearman's clover, White Belgian carrots, Connecticut field pumpkin, Mammoth Chili squash, Thousand-headed kale, lupines, field beans, and Dwarf Essex rape. Oreg.

1/
Cereals.

General.

- Variety test of cereals. N. Mex.
- Varietal experiments with cereals. Wash.
- Widtsoe dry farm. Tests with cereals. Utah.
- Varietal tests of cereal crops. Kans.
- Small grain variety testing. Mich.
- Variety tests of small grains. Ga.
- Crop production. Test of furrow method of seeding wheat. Grain varietal tests. Kans.
- The testing of new and old varieties and strains of small grain (wheat, oats, rye, and barley). N. C.

1/ See also Variety Tests--General, p. 153.

General. (Cont.)

- Variety testing, breeding, acclimatization and cultural studies of small grains. Nebr.
- Small grain and field pea investigations. (a) Varietal experiments with winter wheat and barley, spring wheat, barley, oats, and field peas. Idaho.
- Cereal investigations, including variety tests, cultural treatments and selections of corn, wheat, rye, oats and barley; and the propagation of promising strains of these cereals. Va.
- Cereal investigations. Varietal tests of wheat, oats, barley, grain sorghums and corn. Cereal breeding. Seed treatment tests, and method and time of seeding test with cereals. Kans.
- Varietal investigations of cereals and large-seeded legumes. Wash.
- Dry land agriculture investigations. Kans.
- Field crop investigations under both dry farming and irrigation. (1) Varietal trials with wheat, oats, barley, rye, field peas, alfalfa, sunflowers, grasses, potatoes, and other minor crops. Oreg.
- Cereals. (2) Varietal trials with wheat, barley, oats, peas, flax, and rye. Oreg.
- Small grain investigations. (a) Varietal experiments with wheat, oats, barley. Idaho.
- Crop variety test. (Corn, wheat, oats, soy beans.) Del.
- Cereal variety testing. (Wheat, oats, barley, rye.) N. Dak.
- Cereal investigations. (1) Varietal trials of winter and spring grains, including wheats, oats, and barley. Oreg.
- Small grains. Over-State variety testing. Barley, oats, and wheat. Mich.
- Small grain investigations. (a) Variety tests with wheat, oats, barley and miscellaneous grains under high altitude conditions. Idaho.
- Investigations in the growing of small grains. Tests of various grain mixtures and variety trials of wheat, oats, barley, flax, and rye. Minn.
- Variety trials with small grains. (Wheat, oats, and barley in rows to determine the relative value of varieties of cereals for California conditions, especially with regard to yield.) Calif.

General. (Cont.)

Investigations in cereal grains. Various selections and new productions of wheat, oats, and barley, from the plant breeding section.

Minn.

Cereal investigations. (4) Nursery trials with wheat and rye selections and wheat-rye hybrids.

Oreg.

Barley. (See also Cereals--General, p. 154.)

Varietal trials of barley.

Tenn.

Varietal trials with barley.

Oreg.

Barley variety tests.

S. C.

Barley varieties in the Gallatin Valley.

Mont.

Cooperative experiments. Barley variety comparisons.

Iowa.

Comparative trials with farm crops at the branch stations.
(3) Barley.

Minn.

Varietal tests of wheat and barley.

Utah.

Barley production and storage investigations. Barley variety and breeding studies.

Iowa.

Barley. Variety testing and improvement of varieties by crossing and selection.

Ohio.

Rod row trials of oats and barley.

N. Dak.

Rye and barley production. Variety study chiefly.

Ark.

Cereal investigations. (9) Comparison of spring cereals on different soil types. Barley.

Oreg.

Barley. (1) To determine the variety of barley most suitable for Wyoming. (2) To determine by the head selection method a strain of superior barley with regard to early maturity and yield.

Wyo.

Testing varieties of barley best suited to dry-land conditions in southeastern Wyoming.

Wyo.

Testing of the varieties of barley best suited for dry farming in northeastern Wyoming.

Wyo.

Tests of the varieties of barley best suited for dry farming in northern Wyoming and in southern Montana.

Wyo.

Tests of the varieties of barley best suited to the high altitude of Uinta County where irrigation is practiced.

Wyo.

Barley. (Cont.)

Tests of the best varieties of barley for the irrigated farms of the Big Horn Basin in Wyoming. Wyo.

A study of the adaptation of the important varieties of spring barley for Missouri conditions. Mo.

Buckwheat.

Forage and miscellaneous crop investigations. (b) The introduction and testing of such crops as flax, buckwheat, sunflowers, corn, etc. for the production of grain or forage. Idaho.

Buckwheat investigations. Including variety tests, rate and date of seeding, and breeding for improvement. W. Va.

Corn. (See also Cereals--General, p. 154.)

Variety tests of corn. Va.

Variety test of corn. Ga.

Variety test of corn. Ky.

Variety tests of corn. Okla.

Variety trials with corn. N. Dak.

Varietal trials with corn. Oreg.

Varietal trials of corn. Tenn.

Variety studies of corn. N. Y. Cornell.

Corn variety test. Ala.

Corn variety tests. La.

Corn variety tests. Miss.

Corn variety test. S. C.

Corn variety trial. N. Dak.

Corn experiments. (a) Varietal tests. Oreg.

A study of varieties of corn. Pa.

Cooperative experiments. Corn - variety comparisons. Iowa.

Extensive variety experiments with corn. Ala.

Corn. (Cont.)

Cultural methods and variety tests for corn.	N. Mex.
Corn. Over-State variety tests.	Mich.
Corn variety tests. Testing commercial varieties under varying conditions.	Miss.
Comparative trials with farm crops at the branch stations. (8) Corn varieties and strains.	Minn.
Corn. Standard varieties and pedigreed strains produced at the station.	Ohio.
Forage and miscellaneous crop investigations. (b) The introduction and testing of such crops as flax, buckwheat, sunflowers, corn, etc., for the production of grain or forage.	Idaho.
Corn. Variety tests for mature corn and silage.	Md.
Comparative adaptation of different varieties of corn.	Ark.
Corn varieties in the Gallatin Valley.	Mont.
Performance of varieties of corn.--To study the adaptation of different varieties of corn to conditions in northern, central, and southern Illinois.	Ill.
Tests of the best varieties of corn for the irrigated farms of the Big Horn Basin in Wyoming.	Wyo.
Tests of the varieties of corn best suited for dry farming in northern Wyoming and in southern Montana.	Wyo.
Testing the best varieties of corn suited to irrigated farms in the lower Platte River Valley in Wyoming.	Wyo.
Testing of the varieties of corn best suited for dry farming in northeastern Wyoming.	Wyo.
A comparison of different early strains of Minnesota No. 13, and Northwestern Dent corn.	N. Dak.
Corn variety test on upland and alluvial soil areas. Hill check system.	La.
Tests of high altitude corn.	Mont.
Corn breeding. (a) Studies on development of cold-resistant corn. (b) Development of early maturing varieties for northern Wisconsin.	Wis.

Corn. (Cont.)

Frost resistant corn.	Mich.
A study of corn varieties in relation to their resistance to earworm injury.	N. C.
Corn earworm investigations. Studies of oviposition and corn varietal resistance.	Kans.
Oats. (See also Cereals--General, p. 154.)	
Variety tests of oats.	Va.
Variety tests of oats.	Okla.
Varietal trials of oats.	Tenn.
Varietal trials with oats.	Oreg.
Oats. Variety tests.	Md.
Oat variety test.	Miss.
Oat variety tests.	N. H.
Oat variety test.	S. C.
Oats. Variety tests; winter oats.	Md.
Oats production. Variety study and adaptation of spring oats and winter oats.	Ark.
Performance of varieties of oats.--To determine the productiveness of different varieties of oats in northern, central, and southern Illinois.	Ill.
Cooperative experiments. Oats - variety comparisons.	Iowa.
Comparative trials of farm crops at the Branch Stations. (2) Oats.	Minn.
Oat breeding investigations. Variety studies with oats.	Iowa.
Oats. Standard varieties and pure line strains.	Ohio.
Red row trials of oats and barley.	N. Dak.
A study of important varieties of oats for Missouri conditions.	Mo.
Cereal investigations. (8) Comparison of spring cereals on different soil types. Oats.	Oreg.

Oats. (Cont.)

Small grain and field pea investigations. (c) Oat varieties for peat soils.	Idaho.
Oat varieties in the Gallatin Valley.	Mont.
Tests of the varieties of oats best suited for dry farming in northern Wyoming and in southern Montana.	Wyo.
Testing of the varieties of oats best suited for dry farming in northeastern Wyoming.	Wyo.
Testing varieties of oats best suited to dry-land conditions in southeastern Wyoming.	Wyo.
Tests of the varieties of oats best suited to the high altitude of Uinta County where irrigation is practiced.	Wyo.
Tests of the best varieties of oats for the irrigated farms of the Big Horn Basin in Wyoming.	Wyo.
Oats. (1) To determine the best variety for Wyoming. (2) To obtain by head selection a strain of superior oats with regard to early maturity and yield.	Wyo.
Oat investigation. Variety tests and methods of seeding. Also a study of the origin of false wild oats.	W. Va.
Cereal investigations. (5) Classification trials with oats.	Oreg.

Rice.

New introduction of rice varieties. Bulk seed.	La.
Distribution and study of rice varieties.	La.

Rye. (See also Cereals--General, p. 154.)

Variety tests of rye.	Va.
Varietal trials of rye.	Tenn.
Rye variety test.	S. C.
Comparative trials with farm crops at the Branch Stations. (5) Rye.	Minn.
Rye and barley production. Variety study chiefly.	Ark.
Rye investigations.--To investigate rye culture, plant different varieties of rye and compare yields.	Alaska.
Rye varieties in the Gallatin Valley.	Mont.

Sorghum. (See also Cereals--General, p. 154.)

Variety tests of grain sorghums.	Okla.
Grain sorghum variety test.	Miss.
Variety tests of sweet sorghums.	Okla.
Sorghum variety tests.--To determine relative yields, both of green weight and grain.	Miss.
A comparison of the most important grain sorghums with corn for grain and forage production.	Mo.
Sorghum breeding tests.--Studying new strains, selections, etc.	Miss.
Sorghum production. (Study of variety of production of cane, of quality of sap and of sirup.)	Ark.
Broom corn.	N. Mex.

Wheat. (See also Cereals--General, p. 154.)

Variety tests of wheat.	(P)	Del.
Variety tests of wheat.		Va.
Variety tests of wheat.		Ky.
Variety tests of wheat.		Okla.
Varietal trials with wheat.		Oreg.
Varietal trials of wheat.		Tenn.
Wheat variety test.		S. C.
Wheat. Variety tests.		Md.
Varietal tests of wheat and barley.		Utah.
Wheat breeding investigations. Variety studies with wheat.		Iowa.
Winter wheat trials.		N. Dak.
Cereal investigations. (6) Multiplication and comparison trials of winter wheat selections.		Oreg.
Wheat breeding at Madison Station. Wheat breeding in northern Wisconsin. Variety tests of winter wheat and spring wheat.		Wis.
Wheat production. (Variety and cultural study.)		Ark.

Wheat. (Cont.)

Wheat. Varieties, pure line selections, and cultural work.	Ohio.
Grain varieties. Wheat.	Utah.
Cooperative experiments. Wheat - variety comparisons.	Iowa.
A study of the varieties of wheat with a view to their improvement.	Pa.
Performance of varieties of winter wheat.	Ill.
Performance of varieties of spring wheat.	Ill.
Soil type adaptation with reference to wheat.	Ill.
Cereal investigations. (7) Comparison of spring cereals on different soil types. Wheat.	Oreg.
Comparative trials with farm crops at the branch stations. (6) Winter wheat.	Minn.
Comparative trials of farm crops at the branch stations. (1) Spring wheat.	Minn.
Wheat varieties for northern Arizona.	Ariz.
Winter wheat varieties in the Gallatin Valley.	Mont.
Spring wheat varieties in the Gallatin Valley.	Mont.
Tests of the varieties of spring wheat best suited for dry farming in northern Wyoming and in southern Montana.	Wyo.
Testing of the varieties of spring wheat best suited for dry farming in northeastern Wyoming.	Wyo.
Tests of the varieties of winter wheat best suited for dry farming in northern Wyoming and in southern Montana.	Wyo.
Testing of the varieties of winter wheat best suited for dry farming in northeastern Wyoming.	Wyo.
Winter wheat. Varieties best suited to dry farming in southeastern Wyoming.	Wyo.
Wheat. (1) To determine the best variety of wheat for Wyoming. (2) To obtain by head selection a strain of wheat superior to early maturity and yield.	Wyo.
Tests of the best varieties of wheat for the irrigated farms of the Big Horn Basin in Wyoming.	Wyo.

Wheat. (Cont.)

Tests of the varieties of wheat best suited to the high altitude of Uinta County where irrigation is practiced. Wyo.

Hessian fly investigations. Life history, control measures, and wheat varietal resistance. Kans.

An investigation of the Hessian-fly-resistant qualities of different varieties of wheat. Mo.

Fiber and Oil Crops ^{1/}

Cotton.

Variety test of cotton. Ga.

Variety tests of cotton. Okla.

Variety tests of cotton. Va.

Varietal trials of cotton. Tenn.

Cotton variety tests. Miss.

Cotton variety tests.--Commercial varieties under varying conditions. Miss.

Cotton variety test. La.

Cotton variety tests - with and without poison. S. C.

A study of cotton varieties. Ark.

Cooperative cotton variety study. Ark.

Extensive variety experiments with cotton. Ala.

Short staple cotton variety test. Ala.

Cotton investigation. (1) Variety testing of cotton; (2) to determine the best distance of spacing; (3) to determine the best time of spacing; (4) to determine the effect of topping at various times on yield; (5) to determine best amount and frequency of irrigation. N. Mex.

Cotton variety test in old tobacco belt where cotton is being introduced as a cash crop to supplement tobacco in areas infested with tobacco wilt. N. C.

A study of the adaptations of the important varieties of cotton for the southeast Missouri lowlands. Mo.

^{1/} See also Variety Tests--General, p. 153.

Flax.

Flax varieties in the Gallatin Valley.	Mont.
Investigations in the growing of small grains. Tests of various grain mixtures and variety trials of wheat, oats, barley, flax, and rye.	Minn.
Forage and miscellaneous crop investigations. (b) The introduction and testing of such crops as flax, buckwheat, sunflowers, corn, etc., for the production of grain or forage.	Idaho.
Cereals. (2) Varietal trials with barley, wheat, oats, peas, flax, and rye.	Oreg.
Flax seed culture. Including variety tests, date of seeding, date of harvest, and flax-wheat mixtures.	N. Dak.
Flax investigations. (b) Fiber flax - varietal, rate- and date-of-seeding, and method-of-seeding tests.	Oreg.
Flax investigations. (a) Seed flax - varietal, time and method of planting, rate and method of seeding.	Oreg.
Studies in the classification of farm crops - flax.	Minn.
Flax classification nursery.	Mont.

Tobacco

Variety tests of tobacco.	Va.
Variety tests of tobacco and other crops.	Fla.
Tobacco variety tests.	Ky.
Varietal trials, cultural and fertility experiments, including both fertilizers and green manuring. (Tobacco.)	Tenn.
Comparative field studies with varieties and strains of tobacco.	N. C.
Strain trials of Havana and broadleaf tobacco.	Conn. State.
Variety test of cigar-filler tobacco.	Pa.

1/
Root Crops

Potatoes.

Variety tests of potatoes.	Va.
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1/ See also Sugar Crops--Sugar Beets, p. 167.
See also Variety Tests--General, p. 153.

Potatoes. (Cont.)

Varietal trials with potatoes.	Oreg.
Varietal trial of Irish potatoes.	Tenn.
Potato variety test.	N. J.
Potato investigations. Variety test.	Minn.
Variety and strain trials of potatoes.	N. Dak.
Variety tests.--Tests with strawberries and potatoes, and blight-resistant pears.	Oreg.
Potato varietal and strain testing.	Mich.
Strain tests with potatoes.	Mich.
Potato investigations. (a) Varietal experiments.	Idaho.
Truck and root crops. (3) Varietal trials with potatoes.	Oreg.
Root crop investigations. (c) Variety test of potatoes.	Idaho.
Root crop investigations. (b) Comparison of different selections of potatoes.	Idaho.
Irish potatoes.--Varietal studies; treatment for scab; treatment of seed; time of planting; and methods of culture for second crop of potatoes. Study of various stocks of seed in commercial use.	Ky.
Potato production experiments. (1) Variety and strain tests. (2) Date of planting. (3) Size of seed piece and distance of planting tests. (4) Comparison of smooth and rough seed.	Idaho.
Cultural experiments with Irish potatoes, including (1) variety and strain tests; (2) date of planting; (3) source of seed tests; (4) fertilizer requirements; (5) seed treatment for disease control.	Mo.
Potatoes.--Variety tests and selection of high-yielding strains by the "tuber-unit" method.	Wyo.
Potatoes.--Variety experiments with especial relation to a good late variety.	Md.
Potato investigations.--Variety tests for high altitude selection and disease resistance.	Colo.
Variety tests of potatoes on irrigated land.	Mont.

Potatoes. (Cont.)

Testing varieties of potatoes best suited to dry-land conditions in southeastern Wyoming. Wyo.

Testing of the varieties of potatoes best suited for dry farming in northeastern Wyoming. Wyo.

Tests of the varieties of potatoes best suited for dry farming in northern Wyoming and in southern Montana. Wyo.

Testing the best varieties of potatoes suited to irrigated farms in the lower Platte River Valley in Wyoming. Wyo.

Tests of the best varieties of potatoes for the irrigated farms of the Big Horn Basin in Wyoming. Wyo.

Tests of the varieties of potatoes best suited to the high altitude of Uinta County where irrigation is practiced. Wyo.

Crop and variety tests. Yield of potatoes as governed by disease. Oreg.

Sweet Potatoes.

Variety tests of sweet potatoes. Ala.

Varietal trial of sweet potatoes. Tenn.

Sweet potato variety test. Miss.

Sweet potato variety test.--To determine the varieties best adapted to local conditions. Guam.

Sweet potatoes.--Study of varietal susceptibility to mosaic. Varietal studies with regard to market earliness. Tests of new bunch varieties. Tenn.

Testing varieties and methods of growing yautias, dasheens, and sweet potatoes. Porto Rico.

Miscellaneous.

Root crop investigations.--To determine the relative value of root crops for the region. Alaska.

Beets.--Variety study with mangel wurzel and sugar beets to determine comparative tonnage and feeding value. Miss.

Root crop investigations.--Variety test of stock carrots. Minn.

Root crop investigations.--Variety tests of mangels. Minn.

Miscellaneous. (Cont.)

- Root crop investigations.--Variety tests of turnips. Minn.
- Root crop investigations. (f) Comparisons of various root crops for forage and seed. Idaho.
- Varietal test with mangels, rutabagas, sugar beets, turnips, and garden beets to determine largest yielding varieties. Mich.

1/
Sugar Crops

Sugar Beets.

- Sugar beet varietal testing. Mich.
- Root crop investigations.--Variety tests of sugar beets and cultural test. Minn.
- Varietal tests with mangels, rutabagas, sugar beets, turnips, and garden beets to determine largest yielding varieties. Mich.
- Sugar beet strains in the Gallatin Valley. Mont.
- Tests of the best varieties of sugar beets for the irrigated farms of the Big Horn Basin in Wyoming. Wyo.
- Testing the best varieties of sugar beets suited to irrigated farms in the lower Platte River Valley in Wyoming. Wyo.

Sugar Cane.

- Variety test sugar cane.--To determine the variety or varieties of sugar cane that will produce the highest yield of sugar under St. Croix conditions. Virgin Islands.
- Sugar cane variety test.--To determine the value of new varieties. Miss.
- Relation of sugar cane varieties to soil conditions. (P) La.
- Cooperative investigations on sugar cane seedlings. La.
- Cooperative experiments. Ames Amber Sirup sorghum - variety comparisons. Iowa.
- Testing of new seedling canes. (P) La.

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See also Variety Tests--General, p. 153.

1/
Legumes and Forage Crops

General. (See also Hay Crops, p. 177.)

- Introduction and trial of new forage plants, including variety test work with general farm crops. Fla.
- Forage investigations. (c) Introduction and testing of miscellaneous forage crops. Idaho.
- Studies of various forage plants suited to Coastal Plains soils. Miss.
- Forage crop investigations.--Variety trials of forage crops. Minn.
- Tests of forage crops, at Churchville and Alfred, New York. N. Y. Cornell.
- Forage crops.--A comparison of many crops planted during the last of July. R. I.
- Field crop investigations under both dry farming and irrigation. (1) Varietal trials with wheat, oats, barley, rye, field peas, alfalfa, sunflowers, grasses, potatoes, and other minor crops. Oreg.
- Forage, truck, and field crop trials. Fla.
- Forage and miscellaneous crop investigations. (a) To determine the best varieties of grasses and legumes for the production of forage and the most successful cultural practice. Idaho.
- Species and variety adaptation test of clovers, vetches, and other winter legumes. S. C.
- Forage crop investigations.--To test and determine the relative values of different forage crops under Virgin Islands conditions. The drought-resistant qualities of different crops will be studied and compared with the improvement of the feed supply, especially during periods of protracted drought. Virgin Islands.
- Investigations of the desirability and proper conditions for forage crops in Aroostock County. (P) Me.
- Tests of the varieties of forage crops best suited for dry farming in northern Wyoming and in southern Montana. Wyo.
- A study of varieties, culture and improvement of forage crops, including sorghums and grasses. Ariz.
- Forage crops.--Study of cultural practices and variety testing of various annual, biennial, and perennial forage crops. Nebr.

1/ See also Variety Tests--General, p. 153.

General. (Cont.)

Forage crops. (3) Comparative tests of individual species and combinations for silage, hay, and roots.	Oreg.
Varietal tests of cereal and forage crops.	Kans.
Varietal investigations of cereals and large-seeded legumes.	Wash.
Forage crop investigations. (b) Legume variety test.	Idaho.
A study of legumes on acid soils.	Ark.
Legumes.--To determine which cultivated legumes can be produced economically in Alaska.	Alaska.
Forage and seed crop investigations. (4) Comparison as to yields of forage and seed of the principal varieties of vetch, alfalfa, field peas, and clovers.	Oreg.
Forage investigations, including varieties, culture, and fertilizers for soy beans, cowpeas, millet, clover, and vetch.	Va.
Forage and seed crop investigations. (2) Nursery trials of numerous species of Vicia and Lathyrus, three species of Astragalus, and one each of Lentilla, Pisum, and Lotus, as well as many varieties or strain of melilotus (sweet clover), clover, alfalfa, and soy beans.	Oreg.
Forage crop investigations.--The adaptability of various forage crops to Oklahoma conditions (grasses and legumes).	Okla.
Comparison between Austrian peas and hairy vetch.	Tenn.
Forage crops. Varieties of alfalfa, sweet clover, annual grasses, perennial grasses, field peas, soy beans.	N. Dak.
Investigations in field and garden peas and beans; (a) varietal experiments; (b) value of the various pea varieties as nurse crops for alfalfa; (c) seed bean investigations.	Idaho.
Forage crops for the plains. Sorghums, corn, Sudan grass, and legumes such as sweet clover, alfalfa, soy beans, peas, and cowpeas.	Colo.
<u>Alfalfa.</u> (See also Legumes and Forage Crops--General, p. 168.)	
Variety tests of alfalfa.	Va.
Varietal tests with alfalfa.	Mich.
Alfalfa variety test.	Ala.

Alfalfa. (Cont.)

Alfalfa and clover varieties.	N. H.
Alfalfa and sweet clover varietal testing.	Mich.
Alfalfa investigations. Cultural and variety studies. Alfalfa production.	Iowa.
Alfalfa and sweet clover investigations.--Variety test.	Minn.
Forage crop investigations.--Varieties and strains of alfalfa.	Okla.
Variety, date of seeding, and clipping studies of alfalfa.	Ill.
Alfalfa and sweet clover variety trials.	Minn.
A study of varieties and strains of alfalfa.	Ark.
Alfalfa strains.	N. J.
A test of the different species and varieties of alfalfa.	Pa.
Alfalfa source seed and variety test.	Del.
Crop and variety tests of alfalfa for hay and for seed.	Oreg.
Comparative trials with farm crops at the branch stations. (7) Alfalfa.	Minn.
A study of the adaptation of the important types, varieties, and regional strains of alfalfa.	Mich.
Adaptation studies with clovers and alfalfa.	N. Y. Cornell.
Alfalfa variety test.--To determine the best variety of alfalfa for our irrigated valleys.	N. Mex.
Alfalfa varieties in the Gallatin Valley.	Mont.
Testing the best varieties of alfalfa suited to irrigated farms in the lower Platte River Valley in Wyoming.	Wyo.
Testing of the varieties of alfalfa best suited for dry farming in northeastern Wyoming.	Wyo.
Alfalfa investigations. Factors influencing the securing of a good stand of alfalfa. Effect of late and frequent cuttings. Conditions causing winterkilling. Comparison of hardiness of various varieties and strains. Factors causing yellowing of alfalfa. Seed production.	Wis.
Alfalfa investigations.--To determine the hardiness of different varieties of alfalfa.	Alaska.

Alfalfa. (Cont.)

Hardiness of alfalfa strains. Mont.

A study of the winter hardiness of varieties of alfalfa, and of plants of different ages. N. Dak.

Hardiness of alfalfa plants of different varieties and ages. N. Dak.

Source of alfalfa seed with reference to hardiness. Wyo.

Alfalfa. Grimm and Kansas Common compared for yield and hardiness. Ohio.

Beans. (See also Legumes and Forage Crops--General, p. 168.)

Variety and strain tests with field beans. N. Y. Cornell.

Field bean varieties in the Gallatin Valley. Mont.

Beans.--Over-State varietal test. Mich.

Tests of the varieties of beans best suited for dry farming in northern Wyoming and in southern Montana. Wyo.

Testing varieties of beans best suited to dry land conditions in southeastern Wyoming. Wyo.

Clover. (See also Legumes and Forage Crops--General, p. 168.)

Variety tests of clover. Va.

Varietal trials of clovers. Tenn.

Forage and seed crop investigations. (10) Varietal trials with clover. Oreg.

Alfalfa and clover varieties. N. H.

Variety tests of clover for seed and forage production. Wis.

Alsike clover culture.--To determine if Alsike clover can be grown for seed. Alaska.

Adaptation studies with clovers and alfalfa. N. Y. Cornell.

Forage crop.--A comparison of known and unknown varieties and species of grasses and clovers as to soil and climatic adaptation. Miss.

Species and variety adaptation test of clovers, vetches, and other winter legumes. S. C.

Clover. (Cont.)

- A study of the adaptations of the important strains and nationalities of red clover. Mich.
- Red clover source seed test. Del.
- Clover.--Comparison of strains of imported and domestic strains of red clover seed for yield and hardiness. Ohio.
- Clover.--Different species and varieties compared for yield and hardiness. Ohio.
- Tests of imported red clover seed in comparison with American-grown. Pa.
- A study of the adaptation of red clover grown from seed of known domestic and foreign sources. N. C.
- The influence of the source of red clover seed on disease resistance and on crop production. Va.
- European v. American-grown red clover. Tenn.
- Clover seed production in the Rocky Ford District.--Strains and variety tests, methods of seeding, irrigation, and handling, and disease resistant strains. Colo.
- Crop and variety tests of alfalfa substitutes - clovers and grasses. Oreg.
- Difference between mammoth red clover and common red clover as evidenced in the seed. N. J.
- Forage and seed crop investigations. Production trial, Ladino clover. Oreg.
- Varietal trials of lespedezas. Tenn.
- Cowpeas. (See also Legumes and Forage Crops--General, p. 168.)
- Variety test of cowpeas. Va.
- Variety test of cowpeas. Ga.
- Variety test with cowpeas.--To determine the grain and general purpose varieties best suited to local conditions. Guam.
- Variety tests of cowpeas. Okla.
- Cowpea variety test. Miss.

Cowpeas. (Cont.)

Production of cowpeas. Variety study and uses in practical farming.

Ark.

Cowpea experiments.--To determine the relative value of different varieties of cowpeas as a food crop for the Virgin Islands.

Virgin Islands.

Peas. (See also Legumes and Forage Crops--General, p. 168.)

Varietal trials with field peas.

Oreg.

Variety trials with field peas.

N. Dak.

Field and garden pea investigations. (a) To determine the varieties best adapted to dry lands.

Idaho.

Field pea varieties.--Variety tests and cultural methods adaptable to North Dakota.

N. Dak.

Small grain and field peas investigations.--Varietal experiments with winter wheat and barley, spring wheat, barley, oats and field peas.

Idaho.

Miscellaneous forage crops and field peas.--Varietal tests with soy beans and field peas for grain, forage, and green manuring purposes.

Mich.

Cereals. (2) Varietal trials with barley, wheat, oats, peas, flax, and rye.

Oreg.

Forage crop investigation. Variety test of field peas and soy beans.

Minn.

Pea varieties in the Gallatin Valley.

Mont.

Tests of the varieties of peas best suited for dry farming in northern Wyoming and in southern Montana.

Wyo.

Testing varieties of field peas best suited to dry-land conditions in southeastern Wyoming.

Wyo.

Tests of the varieties of peas best suited to the high altitude of Uinta County where irrigation is practiced.

Wyo.

Peanuts.

Variety tests of peanuts.

Va.

Soy Beans. (See also Legumes and Forage Crops--General, p. 168.)

Soy bean variety test.	Miss.
Soy bean varieties.	Ala.
Soy bean varieties.	N. Dak.
Soy bean variety test in Uniontown.	Ala.
Soy bean variety tests	S. C.
Variety tests of soy beans.	Va.
Variety test of soy beans.	Ga.
Varietal trials of soy beans.	Tenn.
Annual legumes: Variety tests of soy bean.	Md.
Crop and variety tests. (4) Soy beans.	Oreg.
Variety studies of soy beans.	N. Y. Cornell.
Varieties of soy beans and soy beans v. oats in rotation.	Pa.
Soy bean variety tests for hay and grain with reference to yield and quality.	Miss.
Soy bean variety and strain studies at the central and branch stations.	N. C.
Forage crop investigation. Variety test of field peas and soy beans.	Minn.
Miscellaneous forage crops and field peas. Varietal tests with soy beans and field peas for grain, forage, and green manuring purposes.	Mich.
Soy beans: Variety, cultural, and breeding work.	Ohio.
Soy beans: Varietal tests and cultural studies.	Mich.
Cooperative experiments. Soy beans - variety comparisons and cultural experiments.	Iowa.
Forage and seed crop investigations. (6) Selection and varietal trials with soy beans.	Oreg.
Soy bean oil studies. (P)	Miss.
Soy Bean production. Variety and cultural studies.	Iowa.

Soy Beans. (Cont.)

Crop variety tests: Corn, wheat, oats, soy beans. Del.

Performance of varieties of soy beans. Ill.

Study of soy beans: Variety study, rates of planting for seed and for hay. Ark.

Soy bean investigations, including variety tests, methods of seeding, and planting alone and with other crops. W. Va.

A study of the adaptation of the important varieties and selections of soy beans to the various soil types of the State. Mo.

Soy bean varieties in the Gallatin Valley. Mont.

A morphological classification of the varieties of soy beans. Mo.

Sweet Clover. (See also Legumes and Forage Crops--General, p. 168.)

Sweet clover varieties and culture. Va.

Alfalfa and sweet clover variety trials. Minn.

Clover: Annual (Hubam) and biennial sweet clover. Ohio.

Alfalfa and sweet clover varietal testing. Mich.

Alfalfa and sweet clover investigations: Variety test. Minn.

Biennial sweet clovers: Cultural and variety studies. Iowa.

Crop and variety tests of sweet clover for hay and for seed. Oreg.

Hubam clover production. Hubam clover analyses. Iowa.

Hubam clover production. Forage production of Hubam clover. Iowa.

Hubam clover production. Soils studies with Hubam clover. Iowa.

Cooperative experiments. Hubam clover - adaptation to soils and cropping systems. Iowa.

Hubam clover as a hay and nurse crop. Conn. Storrs.

Vetch. (See also Legumes and Forage Crops--General, p. 168.)

Forage crop investigations. (d) Vetch variety tests. Idaho.

Vetch variety tests. Ala.

Vetch. (Cont.)

Forage and seed crop investigations. (1) Varietal trials with vetches for forage and seed. Oreg.

Species and variety adaptation test of clovers, vetches, and other winter legumes. S. C.

Velvet Beans.

Velvet bean varieties. La.

Grasses. (See also Legumes and Forage Crops--General, p. 168.)

Varietal trials of grasses. Tenn.

Perennial grasses: Ten meadow grasses compared as to yield, quality, and permanency. Ohio.

Crop and variety tests of alfalfa substitutes--clovers and grasses. Oreg.

Perennial grasses.--To determine if the common grasses can be grown economically in Alaska. Alaska.

Forage and seed crop investigations. (7) Nursery trials of timothy, rye-grass, Kentucky bluegrass, bent grasses, reed fescue, tall fescue, reed canary grass, Harding grass, meadow foxtail, and other less known grasses for forage and seed production and disease resistance. Oreg.

Forage and seed crop investigations. (8) Plat trials of the following grasses for hay and seed production: Smooth brome, meadow fescue, English rye, Italian rye, Kentucky blue, creeping bent, timothy, orchard, tall oat, redtop, meadow foxtail, reed canary, and Harding grass. Oreg.

Bent grass.--Testing comparative value of selected strains. Mich.

Cooperative experiments. Timothy - variety comparisons. Iowa.

Forage crop investigations. (e) Grass variety test for hay and seed. Idaho.

Hay, forage, and pasture: The botany and culture of bent grasses. Md.

Forage crop.--A comparison of known and unknown varieties and species of grasses and clovers as to soil and climatic adaption. Miss.

Testing of the varieties of grasses best suited for dry farming in northeastern Wyoming. Wyo.

Hay Crops. (See also Pasture Crops, p. 178, and special crops.)

- Hay tests of forage plants alone and in mixture. W. Va.
- Investigations in farm crop production--Hay crops, non-legumes. Minn.
- Forage crops.--To study various crops and combinations of crops for hay. Miss.
- Forage investigations. (a) Grasses and legumes for hay and seed. Idaho.
- Forage crop investigations.--Legumes and grasses grown alone and in mixtures for hay. Minn.
- Pure and mixed cultures of legumes and grasses for hay. Mont.
- Test of winter legumes.--Comparison of strains of crimson clover, vetches, strains of lespedeza to determine their adaptation for hay and for use in rotations. N. C.
- Soy bean variety tests for hay and grain with reference to yield and quality. Miss.
- Soy beans v. cowpeas for hay. S. C.
- Vetch and grain mixtures for hay. Ala.
- Forage crop investigations. (b) Annual grains and legumes for hay. Idaho.
- Emergency hay crops, and supplementary pastures. Wis.
- Small grain investigations. (c) Variety tests of cereals for the production of hay. Idaho.
- An experiment with hay on neglected hay lands. (P) N. H.
- An experiment with legumes on neglected hay lands. (P) N. H.
- Hay, forage, and pasture: Tests of seed from different sources for hay, forage, and pasture. Md.
- Forage crop investigations. (1) The adaptation and yielding ability of the various forage crops for hay when seeded alone and in mixtures. (2) The adaptability of certain new legumes, some of which are more or less acid tolerant. Ill.
- Testing varieties of crops producing forage and hay best suited to dry-land conditions in southeastern Wyoming. Wyo.

Pasture Crops. (See also Hay Crops, p. 177, and special crops.)

Crop and variety tests of pasture grasses.	Oreg.
Emergency hay crops and supplementary pastures.	Wis.
Hay, forage, and pasture: Durability of pasture grasses.	Md.
Biennial sweet clover for New England pastures.	Conn. Storrs.
Adaptation studies with pasture grasses at Coast Station.	S. C.
Red clover, winter vetch, alfalfa, and sweet clover as forage and cover crops.	R. I.
Rape.--To determine if rape can be grown successfully as hog or sheep pasture.	Alaska.
Production of crested wheat grass as an early pasture crop.	N. Dak.
Value of Sudan grass as forage crop for Wisconsin.	Wis.
Pasture and lawn grass studies.	Fla.
A study of the adaptability of various kinds of lawn grasses to Wisconsin conditions, and the best methods of handling them.	Wis.
Turf and lawn grass investigations. A study of the adaptation of a number of strains of creeping bent grass and other turf grasses for Kansas conditions.	Kans.

Silage Crops. (See also special crops.)

Crop and variety tests of silage crops.	Oreg.
Crops for silage.--To determine the relative yields of certain silage crops.	Miss.
Silage crop investigations. (c) Comparison of silage crops.	Idaho.
Investigations in farm crop production--Silage, succulent feeds.	Minn.
Comparison of various kinds of silage and roots for northern Wisconsin.	Wis.
Combination crops for silage: Sunflowers and peas, oats and peas, barley and peas, wheat and peas.	Oreg.
Corn and soy beans for silage.	Ohio.
Combinations of corn and soy beans for silage.	N. Y. Cornell.
Corn and sunflowers as silage crops.	N. Y. Cornell.

Silage Crops. (Cont.)

Forage crops. (3) Variety trials with soy beans for silage purposes.	Oreg.
Forage crops. (1) Comparison of yields of corn, and a mixture of peas and barley, and vetch and barley.	Oreg.
Silage crop investigations. (a) Varietal experiments with corn for silage production. (b) Breeding and selection of corn for eastern Idaho.	Idaho.
Silage crop investigation. (b) Variety test of corn.	Idaho.
Types and varieties of corn for silage.	Ill.
Miscellaneous field studies.--Silage corn.	Utah.
Corn.--Variety tests for mature corn and silage.	Md.
Corn investigations. (a) To determine the yielding capacity of introduced varieties as compared with those locally grown for the production of silage. (b) Later a system of corn breeding will be established to produce an improved variety for this section of the State.	Idaho.
Variety studies of sunflowers.	N. Y. Cornell.
Production and utilization of sunflower silage where corn cannot be profitably produced.	N. Dak.
Sunflower investigations.	W. Va.
Forage and miscellaneous crop investigations. (b) The introduction and testing of such crops as flax, buckwheat, sunflowers, corn, etc., for the production of grain or forage.	Idaho.
Sunflower varieties in the Gallatin Valley.	Mont.

Disease-Resistant Varieties

(See Breeding--Disease Resistance, p. 151.)

CULTURE

General

Soil and crop studies, including rotation, fertilizer, and cultural practice experiments.	Fla.
Tillage investigations. (2) Time of sowing in fall and spring.	Oreg.

- Tillage investigations. (3) Rate of sowing in fall and spring. Oreg.
- Studies in crop cultural methods. Depth of seedbed preparation for cultivated crops. Ind.
- Variety and cultural experiments with farm crops.--To determine the varieties and cultural methods best adapted to the conditions present in the Haleakala homestead district, Island of Maui, T. H. Hawaii.
- Study of methods, equipment, organization, and cost of seedbed preparation on the university farms. (P) Idaho.
- Phenological observations as related to the best time of planting field crops. Ind.

Crop Combinations

- Tests of mixtures of small grains at Churchville and Alfred, New York. N. Y. Cornell.
- Combination cereal crops: Oats, barley, spring wheat, and flax grown in several combinations for yield of grain. Ohio.
- Tests to study the value of certain crops grown alone and in combination for the production of roughage. N. C.
- Mixed oats and Canada peas in a rotation with manure v. fertilizer. E. I.
- Rape, peas, and oats.--To investigate mixtures of rape, peas, and oats for hog pasture. Alaska.
- Corn: Combinations of corn and other crops for forage uses. Ohio.
- Soy beans and corn - associated growth. Wis.
- Growing beans with corn.--To determine the most satisfactory method of planting soy beans and velvet beans with corn. Miss.
- Effect of legumes in corn. Ark.
- Legumes with small grains. Practicability of seeding successfully with various legumes with winter and spring grains for soil improvement and for hay. Ark.
- Test of legumes to seed in small grains. Conn. Storrs.
- Forage crop investigations. (5) Legume combinations. Idaho.
- Comparison of legume and grass mixtures. Tenn.

Combination of small grains with field peas.	N. Y. State.
Flax: Wheat mixtures under irrigation.	Mont.
Cultural methods with farm crops. Flax combinations with wheat and oats.	Minn.
Catch crops: Twenty different crops and crop combinations seeded in corn at last cultivation.	Ohio.

Cereals

General.

Cultural experiments with cereals.	Wash.
Variety testing, breeding, acclimatization, and cultural studies of small grains.	Nebr.
Cereal investigations, including variety tests, cultural treatments and selections of corn, wheat, rye, oats and barley; and the propagation of promising strains of these cereals.	Va.
Cereal investigations. Varietal tests of wheat, oats, barley, grain sorghums, and corn. Cereal breeding. Seed treatment tests, and method and time of seeding tests with cereals.	Kans.
Methods of seeding cereal and forage crops.	Kans.
Tests to determine the best time of seeding cereals and the amounts to be seeded in northern Wyoming.	Wyo.
Dates and rates of seeding small grains.	Va.
Rate and date of planting (cereal crops).--Best season and rate of planting for dry-land conditions.	Colo.
The culture and improvement of small grains, including wheat, oats, barley, and rye.	Ariz.
Investigations in growing of small grains and of flax. Rate and date of seeding.	Minn.
Forage and seed crop investigations. (16) Determination of the effect on the hay yield of cutting at different stages of maturity, winter oats, wheat, rye, barley, and common vetch, and combinations of vetch and these small grains.	Oreg.
A study of upland soil. Rolling seed bed for grain.	Minn.

General. (Cont.)

Planting dates.--To determine the optimum planting dates for wheat, oats, and barley.

Alaska.

Rate-of-seeding experiments with various small grain crops (wheat, oats, barley).

Tenn.

Factors relating to lodging of small grains. (A)

Ohio.

Investigations in the growing of small grains. Reliability of methods. Renewal of border rows (a) at beginning heading, (b) at full heading.

Minn.

Barley. (See also Cereals--General, r. 181.)

Cultural experiments with spring barley.

Mo.

Barley production and storage investigations. Barley culture.

Iowa.

Date-of-planting experiments with barley.

Tenn.

Small grain and field pea investigations. (b) Rate and date of planting winter wheat, barley, and spring wheat.

Idaho.

Buckwheat.

Buckwheat investigations, including variety tests, rate and date of seeding, and breeding for improvement.

W. Va.

Corn. (See also Cereals--General, p. 181.)

Corn production and storage investigations. General culture studies with corn.

Iowa.

Cultural methods and variety tests for corn.

N. Mex.

Corn.--Cultural studies.

Mich.

Corn breeding and improvement. (a) Cultural experiments, (b) breeding and improvement.

Idaho.

Corn production and storage investigations. Seed corn studies.

Iowa.

Corn cultural tests.--Preparation, number of cultivations, date of planting, etc.

Miss.

Corn.--Relation of time of planting and stand of plants to yield.

Ohio.

Time of planting corn.

Ark.

Time of planting corn.

S. C.

Corn. (Cont.)

The time of planting as affecting growth and yields in corn.	Mich.
The effect of time of planting upon the yield of varieties of corn.	Ill.
Date-of-planting experiments with corn.	Tenn.
Date of planting silage corn.	Utah.
Time of replanting corn, with regard to the productivity of the replants.	Tenn.
Experiments with corn. Rate of planting corn for grain and for ensilage.	Minn.
The effects of increased planting rate upon yield of early dwarf crows, especially Howes' Alberta Flint.	N. Dak.
Spacing experiments with corn.	Tenn.
Corn varieties with special attention to yield as influenced by distance of rows and hills of the early maturing strains.	N. Dak.
Tillage experiments with corn.	Tenn.
Cultivation experiments with corn.	Ark.
Effect of cultivation upon yield of corn and upon accumulation of nitrates and upon soil moisture.	Ark.
Corn.--Comparison of effect upon corn of scraping ground with hoe v. cultivation to kill weeds and conserve moisture.	Ohio.
Cost and results of cultivating corn with the all-purpose tractor.	Va.
Influence of soil treatment on the yield and maturity of late planted corn.	Ill.
A study of the influence of time of harvesting seed on the yield of corn.	Ill.
Corn.--Relation of time of harvesting to yield, quality of seed, and disease infestation.	Ohio.
Cultural methods with farm crops. Home-grown imported seed corn.	Minn.
Moisture, soil, and crop relations.--Irrigation and maturing studies with corn.	Utah.

Oats. (See also Cereals--General, p. 181.)

- Oats production and storage investigations. General cultural studies with oats. Iowa.
- Different methods of seeding oats. Ala.
- Cultural experiments with cotton, kafir, and oats. Okla.
- Oat investigation.--Variety tests and methods of seeding; also a study of the origin of false wild oats. W. Va.
- Oats.--Time, rate, and methods of seeding. Ohio.
- Date-of-planting experiments with oats. Tenn.
- Small grain investigations. (d) Rate of planting oats. Idaho.
- Rate of planting of spring oats. Tenn.
- Cultural methods with farm crops. Rates of seeding oats. Minn.

Rice.

- Methods of rice culture. La.
- Rice improvement and methods of production tests. Tex.

Rye. (See also Cereals--General, p. 181.)

- Variety tests with small grains. Rate of seeding winter rye and winter wheat. Minn.
- Experiments with small grains. Time of seeding winter rye and winter wheat. Minn.
- Rye investigations.--To investigate rye culture. Plant different varieties of rye and compare yields. Alaska.

Sorghum. (See also Cereals--General, p. 181.)

- Cultural experiments with kafir. Okla.
- Cultural experiments with cotton, kafir, and oats. Okla.
- A study of the cultural requirements and adaptation of grain sorghums. Mo.
- Rate of planting kafir experiments. Okla.
- Sorghum cultural tests.--Studying methods of handling the crop from planting to harvesting. Miss.

Wheat. (See also Cereals--General, p. 181.)

Cultural experiments, wheat.	Okla.
Wheat production and storage investigations. General culture studies with wheat.	Iowa.
Wheat: Varieties, pure line selection, and cultural work.	Ohio.
Experiments to determine the best cultural methods for winter wheat.	Wyo.
Wheat production. (Variety and cultural study.)	Ark.
Tillage experiments. (Wheat.) Different methods of handling the summer fallow for wheat production.	Oreg.
Fallow and cultural tests with wheat.	Idaho.
Tillage investigations. Wheat seed bed preparation.	Kans.
Experiments with the furrow method of seeding winter wheat.	Kans.
Crop production.--Test of furrow method of seeding wheat; grain varietal tests; etc.	Kans.
Small grain and field pea investigations. (b) Rate and date of planting winter wheat and barley and spring wheat.	Idaho.
Small grain investigations. (b) Rate, date, and depth of seeding winter wheat on dry land.	Idaho.
The best rate of seeding winter wheat.	Wyo.
Cultural methods with farm crops. Rates of seeding spring wheat.	Minn.
Rate of seeding winter wheat on nonirrigated bench lands.	Mont.
Rate of seeding special wheat varieties.	N. Dak.
Miscellaneous tests.--Rate and date of seeding wheat.	Utah.
Variety tests with small grains.--Rate of seeding winter rye and winter wheat.	Minn.
Experiments with small grains.--Time of seeding winter rye and winter wheat.	Minn.
Rate and date of sowing experiments with spring and winter wheats.	Oreg.
Date-of-planting experiments with wheat.	Tenn.
The best date of seeding winter wheat.	Wyo.

Wheat. (Cont.)

Wheat: Straw mulch in relation to wheat yields and clover seedlings.	Ohio.
Miscellaneous tests.--Cultivation of growing wheat.	Utah.
Wheat: Effect of clipping the spring growth upon subsequent development.	Ohio.
Wheat: Fall v. spring seeding of timothy in relation to wheat yields.	Ohio.
Miscellaneous tests.--Delayed harvesting as affecting quality of hard red wheats.	Utah.
When to harvest rusted Marquis wheat.	N. Dak.
Irrigated v. nonirrigated wheat for seed.	Mont.
Heavy v. light seed (wheat).	N. Dak.
Wheat: Environmental factors affecting wheat yields.	Md.

Fiber and Oil Crops

Cotton.

Cultural experiments with cotton, including (a) fertilizer tests.	Mo.
Cultural experiments with cotton, kafir, and oats.	Okla.
The culture and development of Pima and upland cotton.	Ariz.
Cotton cultural tests.--Preparation, number of cultivations, depth, time of laying by, spacing, check rowing, etc.	Miss.
Cotton investigation. (1) Variety testing of cotton. (2) To determine the best distance of spacing. (3) To determine the best time of spacing. (4) To determine the effect of topping at various times on yield. (5) To determine best amount and frequency of irrigation.	N. Mex.
Cotton.--Methods of preparation for planting.	Ala.
A study of the effects of time of preparing seed bed for cotton upon stand and yield.	N. C.
Seed treatment of cotton.	S. C.

Cotton. (Cont.)

A study of the effects of machine separation of cotton seed upon stand and yield. (1) The relation of size of seed to stand, growth, and fruiting. (2) The value of mechanical separation to the grower.	N. C.
A study of the effect of cotton seed treatment upon the stand and yield when planted at different dates.	N. C.
Field tests with cotton. Spacing and time of planting tests.	Fla.
Time of planting cotton.	S. C.
Date-of-planting experiments with cotton.	Tenn.
Spacing experiments with cotton.	Ark.
Spacing cotton.	Ga.
Cotton spacing.	Ala.
Cotton spacing test.	S. C.
Spacing experiments with cotton.	Tenn.
Cotton spacing test.	Miss.
A study of the effects of close and broad spacing of cotton upon yield and quality.	N. C.
Rate of distribution of seed and time of thinning cotton.	Tex.
Spacing and thinning test of cotton.--To determine the influence of different methods of spacing and thinning upon the yields of cotton.	Virgin Islands.
Tillage experiments with cotton.	Tenn.
Methods of chopping cotton.	S. C.
Investigations on the irrigation of cotton in California.	Calif.
Water requirements and the economical use of water for cotton. (P)	N. Mex.

Flax.

Investigations with flax. (b) Cultural practices.	Wis.
Flax: Breeding and cultural work.	Mich.
Flax seed culture, including variety tests, date of seeding, date of harvest, flax-wheat mixtures.	N. Dak.

Flax. (Cont.)

- Investigations in growing of small grains and of flax. Rate and date of seeding. Minn.
- Cultural methods with farm crops. Rates and dates of seeding flax. Minn.
- Flax investigations. (b) Fiber flax - varietal, rate and date of seeding, method of seeding tests. Oreg.
- Flax investigations. (a) Seed flax - varietal, time and method of planting, rate and method of seeding. Oreg.
- Investigations in the growing of small grains. Methods of seed bed preparation for flax. Minn.
- Flax investigations. (d) Use of flax as a nurse crop. Wis.

Tobacco

- Experiments in dark tobacco culture at Clarksville. Tenn.
- Varietal trials, cultural and fertility experiments, including both fertilizers and green manuring. (Tobacco) Tenn.
- Improved methods of handling seed beds, including steam sterilization. Md.
- Topping and suckering (tobacco).--The effects at different heights and dates. Conn. State.
- Tests of chemically treated shade cloth for tobacco. Conn. State.
- Cutting v. priming as methods of harvesting tobacco. Va.

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Root Crops

Artichokes.

- Artichoke culture.--To determine the best methods of planting, harvesting the crop, and storing the tubers. Alaska.
- Cultural investigations and breeding work with artichokes. Mich.
- Cultural methods. (Sugar beets and Jerusalem artichokes.) Utah.

1/ See also Sugar Crops--Sugar Beets, p. 192.

Potatoes.

- A study of factors involved in the production, storage, and handling of Irish potatoes. Ark.
- Potato culture experiments. W. Va.
- Investigations in potato culture.--Cultivation studies. Minn.
- Effect of different cultural practices on yield of Irish potatoes. N. C.
- Irish potatoes.--Varietal studies; treatment for scab; treatment of seed; time of planting; and methods of culture for second crop of potatoes; study of various stocks of seed in commercial use. Ky.
- Cultural investigations to improve the market quality of Michigan's potatoes. Mich.
- Potato investigations.--Methods of planting. Minn.
- Potato cultural work.--Time of planting, space of planting, and weight of seed pieces. Mich.
- Potatoes: Time of planting.--To investigate the effect of time of planting on blossoming and maturity of potatoes. Alaska.
- Potato investigations.--Time of planting. Minn.
- Potatoes: Time of planting late potatoes. Md.
- Date of planting of Irish potatoes. Tenn.
- Investigations in potato culture.--Date of planting. Minn.
- Potato production experiments: (1) Variety and strain tests; (2) date of planting; (3) size of seed piece and distance of planting tests; (4) comparison of smooth and rough seed. Idaho.
- Cultural experiments with Irish potatoes, including (1) variety and strain tests, (2) date of planting, (3) source of seed tests, (4) fertilizer requirements, (5) seed treatment for disease control. Mo.
- Root crop investigations. (d) Rate of planting potatoes. Idaho.
- Potato investigations.--Thickness of planting. Minn.
- Potatoes: (1) Effect on potatoes of the distance of planting in rows upon the total yield and percentage of marketable tubers; (2) effect of missing hills upon total yield. Wyo.

Potatoes. (Cont.)

Mulching of potatoes.

Ohio.

Factors influencing the value of potatoes for seed: Time of planting, time of harvesting, seed treatments, shading of plants, inclosing with screen, mulching.

N. Dak.

Potato investigations: (1) Cultural trials for potatoes, (a) size of piece for planting, (b) method of cutting for seed, (c) comparison of cut seed with and without land-plaster, (d) comparison of cut and uncut seed, (e) time of planting, (f) depth of planting, (g) hill v. flat cultivation, (h) method of seed treatment.

Oreg.

Seed potato investigations.

Ind.

Seed potato development.

Wash.

Potato investigations.--Seed selection.

Minn.

Potato seed improvement on dry land.

Mont.

Potato selection for seed purposes: Seed production in rogued plats located at various places.

Nebr.

Environmental factors: Potato seed selection on dry land.

Mont.

A comparison of seed source stock and seed source areas of potatoes for Pennsylvania.

Pa.

Value of different sources of Irish potato seed.--A comparison of Canadian, Maine, and North Carolina mountain grown seed potatoes.

N. C.

Potato investigations.--Source-of-seed and fertilizer tests.

Kans.

A comparison of Irish Cobbler seed potatoes grown at high altitudes in southwestern Virginia with northern-grown Irish Cobbler potatoes for seed purposes in the trucking region of eastern Virginia.

Va.

Tests of sources of Irish seed potatoes.

S. C.

Miscellaneous field studies.--Size of potato seed.

Utah.

A study of the relation between the soil moisture content and the early development of the potato plant from different sized portions of the seed.

Wyo.

Effect of the size of the potato seed upon the yield and plant growth.

Wyo.

Potatoes. (Cont.)

- Experiments to determine the effect of selection within a variety and the effect of size and shape and time of seed cutting on uniformity and yield of the potato; also, to determine the relation between spent vigor and disease. (P) Me.
- Investigations in potato culture.--Small uncut v. large cut seed. Minn.
- Investigations in potato culture.--Seed and cut v. not cut. Minn.
- Root crop investigations. (e) Comparison of eye and stem end upon yield of potatoes. Idaho.
- Studies - Competition and size of potato seed piece. N. J.
- Sprouting potatoes.--To determine the effect of sprouting potatoes upon growth, date of maturity, and yield. Alaska.
- Effect of cold storage of seed potatoes on production of the crop.--(1) To compare the yielding ability of home- and northern-grown Early Ohio potatoes when stored at different temperatures. (2) To determine the importance of temperature in the storage of seed potatoes. Ill.
- Potato investigations. (4) Handling of seed previous to planning. Oreg.
- Spraying potatoes. N. H.
- Investigations in potato culture.--Spray studies. Minn.
- Spraying and dusting of potatoes. Ohio.
- Dusting and spraying potatoes. (P) Me.
- Potato selection for seed purposes: Bordeaux spraying in eastern and central Nebraska. Nebr.

Sweet Potatoes.

- Sweet potato growing. Wash.
- Sweet potato investigations. Okla.
- Testing varieties and methods of growing yautias, dasheens, and sweet potatoes. Porto Rico.
- A study of the factors involved in the production, curing, and shipping of sweet potatoes. Ark.

Sweet Potatoes. (Cont.)

- The effect of different cultural practices on the yield and quality of sweet potatoes. N. C.
- Sweet potato spacing tests. Miss.
- Fertilizer and cultural tests with sweet potatoes and peppers. Ga.

Sugar Crops

Sugar Beets.

- Adaptability and methods of culture of sugar beets in Louisiana. (P) La.
- Cultural methods (sugar beets and Jerusalem artichokes). Utah.
- Sugar beets.--Cultural methods and field storage. Mich.
- Root crop investigations. Variety tests of sugar beets and culture test. Minn.
- Sugar beets.--To investigate the culture of sugar beets. Plant sugar beets on different types of soil and compare yields. Alaska.
- The value and productivity of sugar beet seed produced annually instead of biennially. (A) N. Mex.

Sugar Cane.

- Sugar cane spacing test.--To determine the relative effects of close and distant planting of cane on the yields of harvested cane and the production of sugar. Virgin Islands.
- Paper mulch experiment with sugar cane.--To determine the influence of a paper mulch applied on cane land before planting the crop on the total yield of sugar produced. Virgin Islands.
- Fallow experiment with cane land.--To conserve soil moisture and to determine the effect of this practice upon the yield of cane and the production of sugar. Virgin Islands.
- A study of the relation between sucrose content in cane and its value for cuttings.--To determine the stage of development in cane, as indicated by sucrose content, in which it gives best results as plant tops and cane cuttings. Virgin Islands.

Legumes and Forage Crops

General.

- To determine the best field practice for handling various forage crops. Wash.
- Forage crops.--Study of cultural practices and variety testing of various annual, biennial, and perennial forage crops. Nebr.
- Forage investigations, including varieties, culture, and fertilizers for soy beans, cowpeas, millet, clover, and vetch. Va.
- Forage and miscellaneous crop investigations. (a) To determine the best varieties of grasses and legumes for the production of forage and the most successful cultural practice. Idaho.
- A study of varieties, culture, and improvement of forage crops, including sorghums and grasses. Ariz.
- The culture and improvement of legumes adapted to the Southwest. Ariz.
- Forage and seed crop investigations. (3) Cultural trials, such as date and rate of seeding in their effect on forage and seed production of hairy vetch, Oregon vetch, winter pea, Tangier pea, and horse beans. Oreg.
- Forage crop investigations.--Time, rate, and method of seeding forage crops. Minn.
- Forage crop investigations.--The relation of time of cutting of forage crops to yield and quality of crop. Minn.
- Cultural tests with alfalfa, sweet clover, cowpeas, and soy beans as hay crops. Va.
- Forage crop investigations. (h) Nurse crop trials. Idaho.
- Prevention of winter injury of leguminous hay crops in northern States. (P) Wis.

Alfalfa. (See also Legumes and Forage Crops--General.)

- Cultural experiments with alfalfa. Va.
- Forage investigations. (b) Cultural tests with alfalfa. Idaho.
- Forage crop investigations. (c) Cultural experiments with alfalfa. Idaho.

Alfalfa. (Cont.)

- Alfalfa investigations. Cultural and variety studies. Alfalfa production. Iowa.
- Sources of clover and alfalfa seed. Va.
- Domestic v. foreign alfalfa and red clover seed. N. Y. State.
- Studies in crop cultural methods.--Winter v. spring seeding of alfalfa, sweet clover, and red clover. Ind.
- Variety, date of seeding, and clipping studies of alfalfa. Ill.
- Alfalfa experiments: (a) Soil treatments (fertilizers including sulfur, rates and time of liming); (b) comparison of nurse crops; (c) dates of seeding; (d) effect of cutting at different stages. Conn. Storrs.
- Alfalfa cultural tests.--Studying rates and dates of seeding. Miss.
- Cultural methods with farm crops.--Dates of planting alfalfa. Minn.
- Alfalfa and sweet clover investigations.--Rate of planting alfalfa. Minn.
- Testing best methods of seeding grass and alfalfa. Wyo.
- Cultural methods with farm crops. Seeding alfalfa with and without a nurse crop. Minn.
- Alfalfa and sweet clover investigations. Nurse crop v. no nurse crop for alfalfa. Minn.
- An economic study of the proper time for cutting alfalfa for hay. (P) Ariz.
- Alfalfa: Number of cuttings. Del.
- Harvesting alfalfa at different stages of growth. Mont.
- Time of cutting alfalfa. N. Y. State.
- Effects of time of cutting on the yields and stand of alfalfa. N. Y. Cornell.
- Alfalfa investigations: Factors influencing the securing of a good stand of alfalfa; effect of late and frequent cuttings; conditions causing winterkilling; comparison of hardiness of various varieties and strains; factors causing yellowing of alfalfa; seed production. Wis.
- Maintaining stands of alfalfa. Ark.

Alfalfa. (Cont.)

- Duty and effect of duty of water on alfalfa. (A) N. Mex.
- Growing Grimm alfalfa for seed. (1) Grimm alfalfa on dry land in rows for seed production. (2) Grimm alfalfa under irrigation for seed production. Oreg.
- Seed production. (c) Alfalfas and clovers. Idaho.
- Studies of alfalfa seed production. (P) Idaho.
- Alfalfa-seed experiment farms. (a) Uinta Basin, (b) San Juan County. Utah.

Clover. (See also Legumes and Forage Crops--General, p. 193.)

- Clover investigations.--Study factors that affect production of clover under local conditions and to determine reasons for clover failures and develop practical methods of overcoming them; study nurse-crop and time-of-seeding factors in getting a stand of clover; to study pollination factors and effect of thick and thin seeding on clover seed production; to test different regional strains of clover under Indiana conditions and develop improved or especially adapted strains for use in this State. Ind.
- Wheat: Straw mulch in relation to wheat yields and clover seedlings. Ohio.
- Forage and seed crop investigations: Trials to determine the best method of securing stands of red clover. Oreg.
- Clover: Methods and time of seeding. Ohio.
- Clover seeding experiments. A study of time and methods of seeding. Ky.
- Clover seed production in the Rocky Ford District.--Strain and variety tests, methods of seeding, irrigation, and handling; and disease-resistant strains. Colo.
- Studies in crop cultural methods.--Winter v. spring seeding of alfalfa, sweet clover, and red clover. Ind.
- Sources of clover and alfalfa seed. Va.
- Domestic v. foreign alfalfa and red clover seed. N. Y. State.
- Red clover seed production.--To determine the best method of handling red clover for seed. Ill.

Clover. (Cont.)

Clover hay production.--To determine the effect on the yield of hay of insects that feed on the clover plants. Ill.

Seed production. (c) Alfalfas and clovers. Idaho.

Clovers for hay and seed production.--To determine the yield of hay and seed of medium red clover, alsike clover, and mammoth clover when subjected to various cultural treatments. Ill.

Soy Beans. (See also Legumes and Forage Crops--General, p. 193.)

Soy bean cultural tests.--To study methods of handling the crop from planting to harvesting. Miss.

Soy bean breeding and cultural studies. Wis.

Soy beans: Variety, cultural, and breeding work. Ohio.

Soy beans: Varietal tests and cultural studies. Mich.

Cooperative experiments. Soy beans - variety comparisons and cultural experiments. Iowa.

Soy bean production: Variety and cultural studies. Iowa.

Soy bean investigations, including variety tests, methods of seeding, and planting alone and with other crops. W. Va.

Time of planting soy beans for hay and seed. Ala.

Cultural experiments with soy beans, including (1) time of seeding, (2) method of seeding, (3) rate of seeding. Mo.

Study of soy beans. (Variety study, rates of planting for seed and for hay.) Ark.

Studies in crop cultural methods. Rate of seeding and cultural methods in the production of soy beans. Ind.

Rate of seeding new varieties of soy beans for seed and hay. N. C.

Rate-of-planting trials with soy beans. Tenn.

Soy beans: Rate-of-planting test. Ohio.

Soy beans: Effect of time of harvesting upon yield and quality of hay and upon yield of wheat following. Comparison of varieties for hay at varied rates of planting. Ohio.

Annual legumes: Soy bean hay making and composition of soy beans. Md.

Sweet Clover. (See also Legumes and Forage Crops--General, p. 193.)

- Sweet clover cultural studies. Mich.
- Cultural and fertility experiments with sweet clover. Tenn.
- Sweet clover varieties and culture. Va.
- Biennial sweet clovers. Cultural and variety studies. Iowa.
- Scarified v. unscarified sweet clover seed. Tenn.
- Sweet clover seed scarification. Minn.
- Studies in crop cultural methods.--Winter v. spring seeding of alfalfa, sweet clover, and red clover. Ind.
- Sweet clover: Methods of seeding as to time, rate, nurse crop and kind of seed (hulled and unhulled) and preparation of seed bed. Comparisons of varieties, strains, and mixtures for hay and green manure. Effect of time of cutting on subsequent growth. Ohio.
- Sweet clover clipping experiment. Ky.
- Effects of time of cutting in the first year on the stand and growth of sweet clover in the second year. Tenn.
- Hubam clover production. Seed production of Hubam clover. Iowa.
- Grasses and Lawns. (See also Legumes and Forage Crops--General, p. 193.)
- Hay, forage, and pasture: Rates of seeding hay mixtures. Md.
- Rate of seeding Sudan grass and cowpea mixtures for hay. Ala.
- Sudan grass investigations. Cultural studies. Iowa.
- Studies in crop cultural methods. Date, rate, and method of seeding Sudan grass. Ind.
- Testing best methods of seeding grass and alfalfa. Wyo.
- Dates of seeding grass. Va.
- Date-of-seeding experiments with grasses. Tenn.
- Forage and seed crop investigations. (15) Moisture changes in stored hay. Oreg.
- Studies in the curing and storage of hay. Iowa.

Grasses and Lawns. (Cont.)

- Lawn grass experiments. Md.
- Lawns and lawn grasses and lawn management. Mass.
- The establishment and maintenance of turf grasses for lawns, pastures, and golf courses. Soil reaction in relation to grass and weed development; methods of fertilizing, watering, top-dressing, clipping, rolling, etc. Ohio.
- Turf construction and maintenance. Minn.
- Lawn-grass mixtures sold in New York. N. Y. State.
- Factors influencing the propagation and growth of selected strains of creeping bent grasses. N. J.

Silage Crops. (See also Culture--Cereals, p. 181.)

- Methods of silage production at Churchville and Alfred, New York. N. Y. Cornell.
- Silage crop investigations. (a) Cultural tests of corn for silage production. Idaho.
- Corn silage: Comparison of effect of rate of planting upon yield of Blue Ridge and Clarage corn harvested for silage at different stages of maturity. Ohio.
- Effect of date of harvesting corn on yield of silage. N. Y. Cornell.
- Sunflower culture.--To investigate culture of sunflowers. Plant sunflower seed and determine the value of the crop for silage. Alaska.
- Sunflower investigations, including a trial of types, selection for improvement, and rate of seeding. W. Va.
- Methods of planting sunflowers under irrigation. Mont.
- Silage crop investigations. (a) Rate and date of planting sunflowers. Idaho.
- Date of seeding sunflowers for silage. Mont.
- Peas and oats investigations.--To determine the optimum date of cutting peas and oats for silage. Alaska.

Miscellaneous Legumes and Forage Crops.

Beans: Cultural work.	Mich.
Cooperative experiments. <u>Dalea alopecuroides</u> - adaptation to soils and cropping systems.	Iowa.
The relation of the reserve food storage in kudzu to cutting and other cultural practices. (P)	Ala.
Kudzu multiplication for hay.	Ala.
Small grain and field pea investigations. (d) Rate and date of planting field peas.	Idaho.
Vetch and Austrian winter peas.--Time and rate of seeding.	Ala.
Lodging of legumes.--To study the effect of growing non-legumes with legumes to prevent lodging of the latter.	Alaska.
A study of the factors affecting the germination and growth of chamiza. (A)	N. Mex.
Forage and seed crop investigations. (14) Seeding and cultural trials for production of rape.	Oreg.
Rate of seeding Sudan grass and cowpea mixtures for hay.	Ala.

Inoculation of Legumes

Legume inoculation experiments.	Va.
Annual legumes: Inoculation for legumes.	Md.
Experiments in legume inoculation.	N. J.
Effect of inoculation upon the growth of various legumes.	Wis.
Effect of various factors on inoculation by legume bacteria.	Wash.
Legume inoculation: Factors affecting successful inoculation, including types of culture, methods of applying, amount and placing of different fertilizers, etc.; also the factors determining the need for inoculation with red and alsike clovers.	Ohio.
Factors influencing the inoculation of legumes. (1) To study the interchangeability of legume bacteria in order to obtain accurate information regarding "natural" inoculation; and (2) to isolate and propagate efficient strains of legume nodule bacteria.	Ill.

What is the effect upon inoculation of placing organisms of <u>Bacillus radicicola</u> upon seed prior to planting?	N. J.
Effect of inoculation of soy bean seed on nitrogen content of plants.	Wis.
Effect of periodical reinoculation of legumes on soils already inoculated.	Ind.
Studies in <u>Rhizobium leguminosarum</u> . (A)	Iowa.
Cross inoculation of the soy bean. (A)	Miss.
Legume culture preparation.	Idaho.
Production and distribution of bacteria for legumes.	Mo.
Legume and vinegar culture work.	Wash.

Dry Farming and Irrigation

Dry Farming.

Investigations at dry farm station - Kanab.	Utah.
Cropping experiments at the Nephi Dry Farm Substation.	Utah.
A study of field crops grown under dry-farm conditions on the Prescott Dry Farm.	Ariz.
Cooperative dry-farming investigations in northeastern New Mexico. (P)	N. Mex.
Dry-land agricultural investigations.	Kans.
Dry-land agriculture investigations.--Crop rotation and tillage experiments; experiments in seed bed preparation for wheat; commercial fertilizer tests; green manures and soil moisture studies.	Kans.
Testing the best cultural methods for growing grain and forage crops without irrigation in northern Wyoming.	Wyo.
Dry-land rotations and tillage. (Best method of handling dry-land soils to make use of water and fertility.)	Colo.
Field crop investigations under both dry farming and irrigation. (2) Date and rate of seeding investigations with wheat, oats, barley, rye, field peas, alfalfa, sunflowers, grasses, potatoes, and other minor crops.	Oreg.
Field crop investigation under both dry farming and irrigation. (3) Tillage experiments with wheat, oats, barley, rye, field peas, alfalfa, sunflowers, grasses, potatoes, and other minor crops.	Oreg.

Irrigation. (See also Dry Farming. p. 200.)

Experiments in irrigation agriculture.--Experiments with crop rotation, commercial fertilizers, pasture grasses, alfalfa irrigation, winter irrigation of various crops, and the use of alfalfa as a pasture for hogs. Kans.

Irrigation practice at Greenville Farm.--Sugar beets, potatoes, wheat, alfalfa, canning peas. Utah.

Rainfall supplemented by underground waters in the production of crops of low water requirements. (P) N. Mex.

Duty of water.--Amount of irrigation water for best results with wheat, oats, barley, peas, alfalfa, sunflowers, and other less important crops. Oreg.

Duty of water and fertilizer tests with potatoes on experimental plats at Deming. N. Mex.

Irrigation experiments. (3) Relation of time and amount of irrigation to seed production with alfalfa and sweet clover. Oreg.

Clover and hay on irrigated lands. Mont.

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FERTILIZERS

General

Fertilizer tests.--To determine the plant food needs of various field crops, truck crops, garden crops, and fruit crops. Miss.

Fertilizer requirements of crops in nonmanure rotations. R. I.

The determination of the ratios of fertilizer ingredients best suited to meet normal relative requirements of crops. (P) R. I.

Rates of applying lime to the principal crops in this region. Va.

Cereals

General.

Forage crops. (2) Recording yields of alfalfa, peas and barley, corn and wheat, after having received an application of different fertilizers. Oreg.

Top-dressing experiments with small grains. Ga.

Barley.

Relative effects of limestone and dolomite on the growth of
barley. N. Y. Cornell.

Corn.

Fertilizer experiments with corn.	Va.
Corn experiments. (b) Fertilizer tests.	Oreg.
Chemical tests on cornstalks as a guide to the fertility requirements of soils for the corn crop.	Ohio.
Methods of applying fertilizers to corn.	Ohio.
Effect of various combinations of fertilizers on quality of wheat, corn and soy beans.	Del.
Corn fertilizer test.--To determine the best analysis and amount of fertilizer for corn.	Miss.
Corn fertility tests.--To study the plant food need, sources of plant food, rates, dates, and methods of application.	Miss.
The effect of different amounts and different methods of applying commercial fertilizer on the corn crop.	Mo.
Comparison of manure, commercial fertilizer, and vetch for cotton and corn. (P)	Ala.
Fertilizer requirements for corn grown on Ashe loam soil.	N. C.
Fertilizer ratio experiment with cotton and corn.	S. C.
The fertilizer needs of corn on grass sod in nonmanure rotations.	R. I.
Rates of fertilizing corn following legumes.	Ala.
Fertility experiments with corn, wheat, soy beans, and hay.	Del.
Effect of nitrogen fertilization on the protein content of corn and the feeding value of the whole plant when ensiled.	N. J.
Fertility test. (Sources of nitrogen, potash and fertilizer mixtures for corn and cotton.) (P)	Miss.
Potash requirements for corn grown on Iredell silt loam.	N. C.
Corn fertilizer test.--To determine the proper analysis, source of nitrogen, and amount of fertilizer for corn.	Miss.

Corn. (Cont.)

Various forms of nitrogen for corn.	Miss.
A comparative trial of various carriers of nitrogen on corn.	Tenn.
Time-of-application experiments with nitrate of soda for corn.	Tenn.
A study of the effects of time of applying nitrate of soda as a top-dresser for corn and Cecil sandy loam.	N. C.
The time of applying nitrate of soda as a top dresser to corn, in relation to yield and quality of grain.	N. C.
Rate-of-application of nitrate of soda for corn and cotton.	Tenn.
Top-dressing corn, wheat, and grass with nitrate of soda and sulfate of ammonia.	Va.
Silage corn in a rotation with manure v. fertilizer.	R. I.
Top-dressing experiments with corn.	Ga.
Fertilizer value of farmyard manure when applied to corn land.	Tenn.
Lime experiments with corn.	Ala.
A study of sources and rate of application of lime for corn on peat soil when used with and without a complete fertilizer.	N. C.
Rates of applying lime to corn, peanuts, and cotton.	Va.

Oats.

Oats fertilizer test.--To determine the fertilizer needs of oats as to plant food elements and rate and date of application of same.	Miss.
Fertilizer formula application to oats.	S. C.
Source of nitrogenous fertilizer to oats.	S. C.
Time of application of nitrogenous fertilizer to oats.	S. C.
Rate of application of nitrogenous fertilizer to oats.	S. C.

Rice.

Fertilizers - their effect on yield and quality of rice.	La.
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Wheat.

Fertilizer experiments with wheat.	Va.
Fertility experiments with corn, wheat, soy beans, and hay.	Del.
Fertilizer experiments. Application of various fertilizers on wheat and alfalfa.	Oreg.
Effect of various combinations of fertilizers on quality of wheat, corn, and soy beans.	Del.
Top-dressing corn, wheat, and grass with nitrate of soda and sulfate of ammonia.	Va.
Use of nitrate of soda on wheat.	Ky.
The effect of applying nitrogen at different stages in the growth of wheat.	N. Dak.
The influence of fertilizers upon the nutritive value of crops. (1) The vitamin B content of the wheat kernel. (A)	Ohic.
Mixed fertilizer trial on wheat.	N. Dak.
Fertilizer formula application to wheat.	S. C.

Fiber and Oil Crops

Cotton.

Fertilizer experiments with cotton.	Va.
Cultural experiments with cotton, including (a) fertilizer tests.	Mo.
Fertilizer formula, rate of application, and liming test with cotton in a three-year rotation.	S. C.
Cotton fertilizer tests.--To determine the plant food needs of cotton, including studies on relative proportion of elements, amount, source, concentration, and methods of mixing.	Miss.
Cotton fertilizer tests.--To determine the plant food needs of cotton, including studies on relative proportion, source, and amount of elements.	Miss.
Cotton fertility tests.--To determine the plant food needs, sources of plant food, rates and dates of application.	Miss.

Cotton. (Cont.)

- Cotton fertilizer tests.--To determine the plant food needs of cotton with various soils and cultural practices, including studies on relative proportion of elements, amount, source, and concentration. Miss.
- Fertilizer experiments with cotton. Tenn.
- Comparison of manure, commercial fertilizer, and vetch for cotton and corn. (P) Ala.
- Fertilizer requirements for cotton grown on Appling sandy loam. N. C.
- Fertilizer ratio needs and quantity requirements for cotton grown on Davidson clay soil. N. C.
- Fertilizer requirements for cotton on Iredell silt loam. N. C.
- Fertilizer requirements for cotton grown on Mecklenburg clay loam soil. N. C.
- Fertilizer ratio and quantity requirements for cotton grown on Orangeburg sandy loam soil and tested by the triangular method. N. C.
- Fertilizer requirements for cotton grown on Norfolk sandy loam soil. N. C.
- Fertilizer ratio and quantity requirements for cotton grown on Marlboro loam soil and tested by the triangular method. N. C.
- A comparison of complete fertilizers of the same nutritive ratio and quantity of plant food, but differing in concentration, when measured by stand and yield of cotton on Cecil sandy loam soil. N. C.
- A comparison of complete fertilizers of the same nutritive ratio and quantity of plant food, but differing in concentration, when measured by stand and yield of cotton on Maroboro sandy loam soil. N. C.
- A comparison of complete fertilizers of the same nutritive ratio and quantity of plant food, but differing in concentration, when measured by stand and yield of cotton on Norfolk fine sandy loam soil. N. C.
- High analysis fertilizer v. low analysis fertilizer for cotton. Ala.
- A study of the effect of fertilizer placement in the production of cotton. S. C.

Cotton. (Cont.)

A study of methods of applying concentrated fertilizers to cotton on Cecil sandy loam soil.	N. C.
Rate of applying fertilizer to cotton.	Ala.
Rate of application of fertilizers to cotton.	Ga.
Cotton fertilization with and without dusting for boll weevil control.	La.
Rate of fertilizing cotton with and without poison.	Ala.
Top-dressing experiments with cotton.	Ga.
Fertilizer ratio experiment with cotton and corn.	S. C.
Fertility test. (Sources of nitrogen, potash, and fertilizer mixtures for corn and cotton.) (P)	Miss.
Sources of nitrogen in fertilizers for cotton and peanuts.	Va.
Various forms of nitrogen for cotton.	Miss.
Source of nitrogenous fertilizer to cotton.	S. C.
A comparative trial of various carriers of nitrogen on cotton.	Tenn.
Sources of nitrogen for cotton.	Ala.
Sources and amounts of nitrogen in cotton fertilizers.	Ga.
Rate of application of nitrogenous fertilizer to cotton.	S. C.
Rate of application of nitrate of soda for corn and cotton.	Tenn.
Efficiency of sources of nitrogen when compared in a complete fertilizer (10-4-3) and measured by the yield and quality of cotton produced.	N. C.
Sulfate of ammonia v. sodium nitrate for cotton with and without lime.	Ala.
Ratio organic to inorganic ammonia for cotton.	Ala.
Time of application of nitrogenous fertilizer to cotton.	S. C.
Time-of-application experiments with nitrate of soda for cotton.	Tenn.
A study of the effects of time of applying nitrate of soda as a top-dresser to cotton on Cecil sandy loam.	N. C.

Cotton. (Cont.)

- A study of the effects of time of applying nitrate of soda as a top-dresser to cotton upon yield and maturity. N. C.
- A study of the relation of phosphoric acid, nitrogen and potash ratio to early maturity and yield of cotton under boll weevil conditions. N. C.
- Superphosphate (acid phosphate) v. basic slag of different fineness for cotton. Ala.
- Comparison of superphosphate (acid phosphate) with various grades of basic slag as sources of phosphorus for cotton. Ala.
- Sources of phosphorus for peanuts and cotton. Va.
- Sources of potash for cotton. Ala.
- Sources of potash experiments with cotton. Ala.
- Lime experiments with cotton. Ala.
- Rates of applying lime to corn, peanuts, and cotton. Va.
- High and low lime requirements cropping system with cotton. Ala.
- Comparison of ground shells with dolomitic limestone for peanuts and cotton. Va.

Tobacco

- Studies of fertilizer requirements of tobacco. Wis.
- Fertilizer tests with tobacco. Ky.
- Fertilizer and rotation experiments with tobacco. Ky.
- Varietal trials, cultural and fertility experiments, including both fertilizers and green manuring. (Tobacco.) Tenn.
- Fertilizer experiments with dark tobacco and crops grown in rotations with it. Va.
- Fertilizer experiments with sun-cured tobacco and crops grown in rotation with it. Va.
- Fertilizer tests with bright tobacco and crops grown in rotation with it. Va.
- Fertilizer experiments with shade-grown tobacco. Fla.

- Fertilizer tests, and studies in the nutrition requirements of the tobacco plant, with reference to both quality and yield of leaf tobacco. Md.
- Fertilizer experiments on yield and quality. (Tobacco.)
 (a) Sources of nitrogen; (b) rates of phosphoric acid; (c) sources and rates of potash; (d) fractional applications; (e) stable manure. Conn. State.
- Effect of fertilizers on yield and quality of Pennsylvania cigar filler tobacco. Pa.
- A study of the fertilizer requirements for tobacco when grown on a three-year rotation with oats, cowpeas, and rye on Durham sandy loam. N. C.
- Determination of the need for manure in growing shade tobacco. Fla.
- A study of the effects of different sources of nitrogen upon the quality and yield of tobacco when applied alone and as a sole source of nitrogen in a complete fertilizer on Durham sandy loam soil. N. C.
- The determination of the influence of varying the quantity of fertilizer nitrogen on the yield and quality of Havana tobacco when topped at different heights. Mass.
- Sources of ammonia used in tobacco fertilizers. Va.
- Rôle of nitrogen and sulfur in the metabolism of the tobacco plant. Conn. State.
- Determination of the effect of various carriers of phosphoric acid on the growth and quality of shade tobacco. Fla.
- To what extent can phosphoric acid and potash be used to correct the effects upon quality of tobacco when cowpeas are grown in the rotation and turned under on Durham sandy loam? N. C.
- A study of the effects of different sources of potash upon the yield and quality of tobacco when used with and without dolomite and calcite on Durham sandy loam. N. C.
- Determination of the effect of various carriers of potash on growth and quality of shade tobacco. Fla.
- A comparison of sulfate and muriate of potash as sources of potash in a complete fertilizer for tobacco when used with and without applications of dolomite on Durham sandy loam. N. C.
- Effects of the kind of potash used, also effects of sulfur and chlorine on the burning quality of tobacco. Va.

A study of the effects of magnesia, sulfur, and chlorine upon the quality of tobacco when applied with a complete fertilizer composed of ammonium nitrate, dicalcium phosphate, and potassium nitrate on Durham sandy loam.

N. C.

A study of the effects of magnesia upon the quality and yield of tobacco when applied in varying amounts to plats that receive a complete fertilizer on Durham sandy loam soil.

N. C.

Determination of the effect of differences in the chlorine content of fertilizers on the chlorine content and quality of Burley tobacco.

Ky.

Root Crops ^{1/}

Potatoes.

Fertilizer studies with potatoes.

Ohio.

Potato investigations.--Fertilizer tests.

Minn.

Investigations in potato culture.--Fertilizer studies.

Minn.

Potato investigations.--Fertilizer for potatoes.

Minn.

Fertilizer tests with strawberries, Irish potatoes, and cabbage in south Alabama.

Ala.

Fertilizer requirements of early potatoes and sweet potatoes on Norfolk soil.

Md.

Fertilizer needs of potatoes in nonmanure rotations.

R. I.

Studies in soil fertility.--Complete fertilizers on potatoes.

Minn.

Potato investigation. (3) Effect of commercial fertilizer on potato yield and quality.

Oreg.

Fertilizer experiments to determine response of such crops as Irish potatoes and melons to various plant nutrients on the typical brown loam of the Central Basin.

Tenn.

Duty of water and fertilizer tests with potatoes on experimental plats at Deming.

N. Mex.

Fertilizer placement tests with potatoes.

N. H.

The value of manure for potatoes.

N. H.

Fertilizer experiments designed to determine the proper combination and use of nitrogen, phosphoric acid, and potash for sweet corn and potatoes. (P)

Me.

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See also Sugar Crops--Sugar Beets, p. 211.

Potatoes. (Cont.)

- Effect of phosphorus, potash, sulfur, gypsum, and manure on alfalfa and potatoes. Idaho.
- Fertilizer experiments designed to determine the proper combination and use of nitrogen, phosphoric acid, and potash for sweet corn and potatoes. (P) Me.
- Nitrates v. ammoniates for potatoes. N. H.
- A study of the effect of varying amounts of phosphoric acid (nitrogen and potash remaining constant) on the growth and yield of potatoes. N. J.
- A comparison of superphosphate (acid phosphate) and rock phosphate for potatoes on three types of soil.--Clinder experiment. N. J.
- Potash for potatoes. N. H.
- Potatoes: Cooking qualities as influenced by the amount and kind of potash carrier. R. I.
- Sweet Potatoes.
- Fertilizer requirements for sweet potatoes on Norfolk sandy loam soil. N. C.
- Fertilizer requirements of early potatoes and sweet potatoes on Norfolk soil. Md.
- Fertilizer tests with horticultural crops.--To determine the most profitable fertilizers for tomatoes, sweet potatoes, pecans, strawberries, and peaches. Miss.
- Fertilizer and cultural tests with sweet potatoes and peppers. Ga.
- Sweet potato fertilizer test.--To determine the proper analysis and amount of fertilizer for sweet potatoes. Miss.
- Fertilizer ratio and quantity requirements for sweet potatoes on Cecil sandy loam soil. N. C.
- Fertilizer and quantity requirements for sweet potatoes grown on Norfolk loamy fine sand when tested by the triangular method. N. C.
- A comparison of complete fertilizers on the same nutritive ratio and quantity of plant food, but differing in concentration, when measured by stand, yield, and quality of sweet potatoes, on Norfolk loamy fine sand. N. C.

Sweet Potatoes. (Cont.)

Sweet potatoes: Fertilizers - best nitrogen and potash carriers. Md.

A comparative trial of various carriers of nitrogen on sweet potatoes. Tenn.

Sweet potatoes: Lime influence, Salisbury, Cheltenham. Md.

Sugar Crops

Sugar Beets.

Fertilizer tests.--The effect of phosphate fertilizers on germination of sugar beets. Minn.

Sugar Cane.

Fertilizer experiments.--To determine the comparative value of commercial nitrogenous materials when used in fertilizing sugar cane. La.

Commercial nitrogen v. leguminous plants in cane growing.--
To determine the comparative utility of nitrate of soda, sulfate of ammonia, and leguminous green manures, as sources of nitrogen for cane fertilization. Porto Rico.

Proper ratio of phosphoric acid in a cane fertilizer. La.

Potash as a necessary ingredient in a cane fertilizer and time of application. La.

Legumes and Forage Crops

Alfalfa.

Alfalfa fertilizer experiment. Ala.

Fertilizer experiments with alfalfa. Va.

Fertility test for alfalfa in the black belt of Mississippi. (P) Miss.

Crop rotation and fertility.--Alfalfa fertility. Okla.

Fertilizer experiments. Application of various fertilizers on wheat and alfalfa. Oreg.

Fertilizer tests.--The residual effect of commercial fertilizers, with and without manure, on alfalfa. Minn.

Alfalfa. (Cont.)

- Forage and seed crop investigations. (12) Determination of the effect on alfalfa of various fertilizers, particularly sulfur, but including also calcium sulfate, potassium sulfate, superphosphate (acid phosphate), copper sulfate, iron sulphate, copper carbonate, and gypsum. Oreg.
- Effect of phosphorus, potash, sulfur, gypsum, and manure on alfalfa and potatoes. Idaho.
- Response of alfalfa to phosphoric acid, nitrogen and potash. (P) Miss.
- Alfalfa fertilizer tests.--To study (1) the effect of fertilizers, especially phosphorus carriers, on yield of alfalfa, (2) the possibility of increasing the yield in old established alfalfa fields by application of commercial fertilizers. N. Mex.
- Trials of superphosphate (acid phosphate) for alfalfa. N. Dak.
- Fertilizer tests.--The residual effect of phosphate fertilizers with and without manure on alfalfa. Minn.
- Effect of sulfur upon the yield of alfalfa. Mont.
- Sod fertility investigations: (a) To determine the effect of sulfur on yield of alfalfa; (b) crop rotations designed to maintain soil fertility and crop yields. Idaho.
- Phosphate and fertilizer investigations.--The use of gypsum, manure, rock phosphate, superphosphate (acid phosphate), sulfate of potash, and the last two in combination and the use of lime with all of the above combinations on alfalfa. Minn.
- Alfalfa experiments. (a) Soil treatments - fertilizers including sulfur, rates and time of liming; (b) comparison of nurse crops; (c) dates of seeding; (d) effect of cutting at different stages. Conn. Storrs.
- Fertilizer and liming experiments with alfalfa. Tenn.
- A study of the lime and fertilizer requirements of alfalfa. Ind.
- The lime requirements of alfalfa, soy beans, clover, and other crops in this region. Va.
- Alfalfa and sweet clover investigations.--Lime v. no lime for alfalfa. Minn.
- Effect of applications of lime to soil in relation to growth of clover and alfalfa at Highmoor Farm. Me.

Alfalfa. (Cont.)

The use of different amounts of lime in the growing of alfalfa. N. J.

Alfalfa.--Fertilizer and lime tests to ascertain the mineral requirements of alfalfa. Miss.

Alfalfa experiment.--An attempt to grow alfalfa on limed land fertilized in various ways. Miss.

Peanuts.

Fertilizer experiments with peanuts. Va.

Fertilizer requirements for peanuts on Norfolk fine sandy loam soil. N. C.

Fertilizer requirements for peanuts grown on Coxville very fine sandy loam soil. N. C.

Sources of phosphorus for peanuts and cotton. Va.

Sources of nitrogen in fertilizers for cotton and peanuts. Va.

A study of the effects of time and method of applying gypsum and ground limestone upon the yield and quality of peanuts. N. C.

Rates of applying lime to corn, peanuts, and cotton. Va.

Comparison of ground shells with dolomitic limestone for peanuts and cotton. Va.

Soy beans.

Fertilizer requirements for soy beans grown in Elkton sandy loam soil.

Fertility experiments with corn, wheat, soy beans, and hay. Del.

Effect of various combinations of fertilizers on quality of wheat, corn, and soy beans. Del.

Breeding and fertilizer experiments with soy beans. (P) Del.

Influence of liming and inoculation on growth and composition of soy beans. Ill.

The lime requirements of alfalfa, soy beans, clover, and other crops in this region. Va.

Effect of soil treatment on the composition and quality of soy beans. Ind.

Grasses.

- Fertilizer experiments with grass. Va.
- Fertility experiments with corn, wheat, soy beans, and hay. Del.
- Fertilizer needs of grasses in nonmanure rotations. R. I.
- Studies of pasture grasses, their response to fertilizer treatments, and the influence of fertilizers on the composition of the grasses. Va.
- Timothy: Maintenance of timothy meadow by the use of different kinds and quantities of fertilizers. Ohio.
- Top-dressing corn, wheat, and grass with nitrate of soda and sulfate of ammonia. Va.
- Liming experiments on typical Central Basin soil high in phosphoric acid content. Crops used: Clovers and grasses. Tenn.
- Effect of lime and manure on Napier, Guatemala, and Japanese cane.--To determine the effect of local lime, barnyard manure and the combination of the two on the yield of Napier, Guatemala, and Japanese cane. Guam.
- Fertilizer experiments with Napier grass.--To determine the effect of local lime and ground coral limestone (cascajo) on the yield of Napier grass. Guam.
- Experiments in lawn fertilization. Conn. State.
- Lawn and golf grasses. R. I.

Miscellaneous Legumes and Forage Crops.

- A study of the relationship between the content of certain mineral elements of roughages and the mineral content of the soil. (P) S. C.
- Fertility experiments with various legumes.--A comparative study, including reseeding ability. Tenn.
- Forage investigations, including varieties, culture, and fertilizers for soy beans, cowpeas, millet, clover, and vetch. Va.
- Forage crops. (2) Recording yields of alfalfa, peas and barley, corn and wheat, after having received an application of different fertilizers. Oreg.
- Effect of phosphorus fertilizer on yield and phosphorus content of forage crops. Mont.

Miscellaneous Legumes and Forage Crops. (Cont.)

Liming experiments on typical Central Basin soil high in phosphoric acid content. Crops used: Clovers and grasses. Tenn.

Effect of applications of lime to soil in relation to growth of clover and alfalfa at Highmoor Farm. Me.

The lime requirements of alfalfa, soy beans, clover, and other crops in this region. Va.

Fertilizer and liming experiments with sweet clover. Tenn.

A fertilizer experiment with field beans. N. Y. Cornell.

Fertilizer Application in Rotations

Rotation, fertilizer, and soil improvement investigations. Tex.

Miscellaneous fertilizer experiments in connection with a three-year crop rotation. Tenn.

Manure and fertilizer experiments in a five-year crop rotation. Tenn.

Crop rotation and soil fertility experiments. Tests of crop rotations, commercial fertilizers, and manure. Kans.

Fertilizer and liming experiments in a four-year crop rotation, one set on red and one on gray land. Tenn.

Crop rotation.--To study various crop rotations, and the effect of lime, raw rock phosphate, and manures in connection with same. Miss.

The effect of rock phosphate on crop growth under a five-year rotation. Iowa.

Cullers' rotation of crops, including tests of rock v. super-phosphate (acid phosphate). Ala.

Fertility and rotation experiments. (1) Manure as a fertilizer for major crops. Oreg.

Manuring experiments.--To determine the profitable limit in use of manure in a rotation of corn, wheat and clover, and place in the rotation where the application of manure is most effective. Also to determine the profitable limit in use of manure in continuous corn culture. Ky.

- Fertilizing the dairy farm rotations to determine: (a) If manure should be applied to corn or hay; (b) if manure should be reinforced with superphosphate (acid phosphate); (c) if fertilizer (2-12-4) should be used as a "starter" for the corn crop when manure is applied at 12 tons per acre. Conn. Storrs
- Mixed oats and Canada peas in a rotation with manure v. fertilizer. R. I.
- A study of the effect of different fertilizers, lime and plaster, and different amounts and sources, on the production of corn, oats, and mixed clover and timothy in rotation. Pa.
- Fertility experiments in a cowpea-corn rotation. Tenn.
- Fertility experiments in a cowpea-wheat rotation. Tenn.
- Fertilizer, lime, and green manure experiments in a rotation of cowpeas and wheat. Tenn.
- Fertilizer experiments with peanuts, sweet potatoes, oats, and vetch in rotation. S. C.
- Triangular fertilizer experiments with cotton, corn, and wheat, followed by cowpeas, grown in rotation. Ga.
- Rotations: Silage corn with grass and clover seeded in it, grass, oat and pea hay followed by rutabagas; annually 3 cords cow manure with straw bedding v. sawdust bedding, the latter with different amounts of phosphorus and of potassium, all compared with fertilizer alone. R. I.
- Sources of phosphate experiments with cotton, corn and oats in rotation in five different fields. Ala.
- A comparison of limestone, burnt lime and hydrated lime when used with superphosphate (acid phosphate) for crimson clover, soy beans, rye, oats and vetch, and cotton in a four-year rotation on Cecil sandy loam soil. N. C.
- A study of the best place in the rotation to apply manure. Ind.
- Crop rotation experiments.--The use of crop residues applied at rates varying from 0 to 2 tons per acre upon a rotation of corn and wheat. Minn.
- Crop rotation experiments.--The use of barnyard manure applied at rates from 0 to 32 tons per acre upon a four-year rotation of corn, wheat, barley, clover. Minn.
- Fertilizer requirements for corn, wheat and soy beans when grown in a two-year rotation on Toxaway loam soil. N. C.

Fertilizer and lime requirements for crops in a three-year rotation of corn, oats, soy beans broadcast (turned under) and Irish potatoes on peat soil. N. C.

Fertilizer and lime requirements for crops in a three-year rotation of corn, oats, vetch, soy beans (turned under), rye (turned under), soy beans (for seed), and rye (turned under) on Norfolk fine sandy loam soil. N. C.

Fertilizer and lime requirements for corn and soy beans grown in rotation, the soy beans being utilized for seed production in one series, and for hay production in another. N. C.

Fertilizer and lime requirements for Irish potatoes, wheat and soy beans when grown in rotation on Foxaway loam. N. C.

Fertilizer and lime requirements for cotton, rye, corn, wheat and red clover when grown in rotation on Cecil clay loam. N. C.

Fertilizer requirements for wheat, red clover and corn grown in rotation on Davidson clay loam. N. C.

General fertilizer formula test with cotton, corn, and small grain in rotation. S. C.

Rotation and fertilizer experiments with corn, sweet potatoes, peanuts, Napier grass, and other crops. Fla.

Cover Crops

Cover crop and green manure studies. Fla.

Cover crop tests. Wash.

Cover crop experiments. W. Va.

Effect of various cover crops. Conn. State.

Effect of winter cover crop, with and without lime, on the succeeding summer crop. S. C.

Experiments with leguminous cover crops.--To determine the relative values of different legumes as cover crops in the Virgin Islands, with especial reference to their ability to suppress "Bay Grass" (Capriola dactylon) from sugar cane fields and other cultivated lands. Virgin Islands.

Investigations in field and garden peas and beans, (a) varietal experiments, (b) value of the various pea varieties as nurse crops for alfalfa, (c) seed-bean investigations. Idaho.

Cover crops for corn.--A test of the value of various cover crops as measured by their effect on the succeeding corn crops.	Miss.
The nitrogen value of legumes over rye in continual corn culture.	R. I.
Legumes v. rye as cover crops for corn.	R. I.
Clover v. rye cover crops as influencing the nitrogen needs of corn.	R. I.
Cover crops.--A study of the adaptation of various winter cover crops for growing in cotton middles.	Miss.
Crop rotations to determine (a) the value of sweet clover as a green manure, (b) the value of summer fallow, (c) the value of a short rotation with sweet clover v. a long rotation with alfalfa.	Wyo.
Hay, forage, and pasture: Green manure and soiling crops - rye, vetch, sweet clover.	Md.

1/ ROTATIONS

General

Crop rotation experiments.	W. Va.
Crop rotation experiments.	Ky.
Crop rotation.	Md.
Investigations in farm crop production.--Crop rotations.	Minn.
Crop rotation trials.	S. Dak.
Systems of crop rotation.	Ala.
Rotations and fertility tests.	Utah.
Rotation experiments. (1) Crop rotations, (2) soil fertility rotations.	Oreg.
Crop rotation and fertility.	Okla.
Rotation and fertility investigations at Moscow and Sandpoint.	Idaho.

1/ See also Fertilizer Application in Rotations, p. 215; and Soils and Fertilizers--Soil Fertility, p. 385.

Crop rotation and fertilizer experiments.	Mo.
Combination fertilizer and rotation experiments.	Ark.
Crop rotation and fertilizer experiments.	Nebr.
Influence of cropping systems on production costs. (P)	Utah.
A comparative study of various crop rotations.	Tenn.
Sod fertility investigations: (a) to determine the effect of sulfur on yield of alfalfa; (b) crop rotations designed to maintain soil fertility and crop yields.	Idaho.
A comparative study of different systems of cropping or crop rotation.	Ind.
Fertility and rotation experiments. (4) Rotation of crops to compare yields with continuous cropping yields of the same crops.	Oreg.
Crop rotations v. continuous cropping.	Del.
Cereals: (3) Crop rotation trials covering one-, two-, and three-year rotation systems.	Oreg.
Crop rotation experiments.--A three-year rotation of oats, clover, and corn, applying six tons of manure per acre preceding corn.	Minn.
Crop rotation experiments.--A five-year rotation of oats, clover hay, timothy and clover hay, corn and wheat, applying ten tons of manure preceding corn.	Minn.
Crop rotations with and without tobacco.	Va.
Types of rotations with and without tobacco.	Va.
Crop rotations consisting of grain and hay.	Va.
Rotations: Corn, early potatoes, four years of mainly alfalfa.	R. I.
Rotations: Potatoes, corn, five years of mainly alfalfa.	R. I.
Alfalfa in rotation, following early potatoes for four years preceding corn.	R. I.
Potato investigations.--Rotation tests.	Minn.
Investigations in potato culture.--Rotations.	Minn.
Crop rotation investigations. (Wheat, clover, pasture, timothy, mangels, flax, oats, barley, rye, brome grass, orchard grass meadow fescue, in various combinations.)	Minn.

- Crop rotation experiments.--The utilization of sweet clover in a four-year rotation of corn, wheat, barley, clover. Minn.
- Varieties of soy beans and soy beans v. oats in rotation. Pa.
- Rotation plats.--To study soy beans grown in various ways in rotation with cotton and corn. Miss.
- Soy bean investigations, including variety tests, methods of seeding, and planting alone and with other crops. W. Va.
- Rotation study - cotton and corn. S. C.
- A study of the utilization of crops grown in rotation with cotton by two different methods. (P) N. C.
- Crop rotation experiments.--Two-year rotation of oats and wheat; two-year rotation of oats and barley; two-year rotation of wheat and barley. Minn.
- Rotation experiments with peas and wheat. Idaho.
- Wheat grown in a rotation. R. I.
- Rye in rotations. R. I.
- Wheat-sweet clover rotation on yellow-gray fine sandy loam (deep loess). Ill.
- Value of cowpeas, soy beans, and velvet beans in the usual three-year rotation, with and without Melilotus indica. La.
- Four-year rotation using corn and legumes two years with cowpeas, soy beans, velvet beans, and Melilotus indica. La.
- Demonstration rotations on large area plats with (1) corn and cowpeas, (2) cotton in regular rotation. La.
- Crop rotation studies with velvet beans, corn, sweet potatoes, and peanuts. Fla.
- Rotations: Corn, potatoes, rye and rowen, one to two years of grass, including one rotation with and one without legumes. R. I.
- Rotations: Effect upon yield and quality of rice, (1) two years with rice and soy beans, (2) two years with rice and pasture, (3) four years with rice, oats, corn, and soy beans. La.
- Rotations: Potatoes, mixed hay, mixed hay and rutabagas. R. I.
- Crop rotation and soil management trials.--Crop sequence on sugar beet land. Minn.

1/
Continuous Cropping

- Crop rotation experiments.--Continuous cropping plats of oats, barley, wheat. Minn.
- Crop rotation and soil management trials.--Continuous cropping of corn. Minn.
- Soil investigations. (e) Effect of continued cropping upon the yield of spring wheat. Idaho.
- The continuous growing of wheat and rye with and without a legume cover crop. N. J.
- Investigations in potato culture.--Continuous cropping. Minn.

2/
Regional

- A dairy farm rotation on worn-out hay lands. (P) N. H.
- Bottom land rotation. Okla.
- Fertility rotations. (2) Twenty-nine cooperative dry land rotations. Oreg.
- A study of the most efficient crop rotations for the production of grain and potatoes on dry farms in northern Wyoming. Wyo.
- A study of the rotations best suited for dry-farming in southeastern Wyoming. Wyo.
- Testing of rotations in order to determine what rotation system is best suited for crop production in northeastern Wyoming. Wyo.
- Rotations as outlined by the Office of Dry Land Agriculture. N. Dak.
- Crop rotation experiments, using wheat as a major crop--
To determine (1) what crops if any can be partly or entirely substituted for bare fallow in dry-land grain production, (2) the best order or sequence to grow cultivated crops in a rotation with grain on dry land, and (3) the effects on yields of grain of turning under various grain and leguminous crops for green Manure as compared with bare fallow without manurial or fertilizer applications. Oreg.
- Irrigated rotations. Mont.

1/ See also Rotations--General, p. 216; Effect on Succeeding Crop, p. 222.

2/ See also Rotations--General, p. 218.

- A study of the best rotations to produce a permanent system of agriculture on the irrigated land in Uinta County. Wyo.
- Rotations to determine the place of sweet clover in the slope country. N. Dak.
- Crop rotation in cane farming.--To determine the relative effect of continuous cane cropping on the same soil and a rotation system on the yield of cane and sugar production on St. Croix soils. Virgin Islands.

1/

Tobacco Rotations

- Rotation experiments with tobacco. Ky.
- Crop rotation tests with tobacco. Md.
- Accessory rotation tobacco. Mass.
- Tobacco cropping system investigation. Mass.
- Study of the effects of other crops in a rotation on tobacco. Wis.
- Effects of crops on yields of succeeding crops in the rotation, with special reference to tobacco. Md.
- The study of the effect of crops plus their specific fertilizers upon those which follow with special reference to tobacco. Mass.
- A study of the effects upon yield and quality of tobacco when grown in a four-year rotation with crimson clover, corn, oats, cowpeas (for hay), and Sudan grass on Durham sandy loam. N. C.
- A study of the effects upon yield and quality of tobacco when grown with different combinations of cotton, corn, small grain, legumes, meadow, and fallow to form three-year rotations on Durham sandy loam. N. C.

2/

Effect on Succeeding Crop

- The influence of different crops upon the growth of crops that follow. Ill.
- The effect of cropping systems upon the production of succeeding crops. Wash.

1/ See also Fertilizers--Tobacco, p. 207; and Rotations--General, p. 218.

2/ See also Continuous Cropping, p. 221; and Rotations--General, p. 218.

- Rotation of crops: Fifty different crop rotations and the effect of preceding crops upon yield. Ohio.
- Crop relations experiment. Va.
- Influence of crop plants on nutrient medium and on growth of subsequent crops. (A) R. I.
- The comparative aftereffects of various legumes and of grass as shown by succeeding corn crops. Tenn.
- Laboratory studies on the differences in wheat yields in the crop rotation experiments, after corn, soy beans, and tobacco. Ky.
- The effect of legumes on succeeding crops from various methods of disposal. Ark.
- Soil fertility.--Effect of different legumes on growth of wheat and cotton, etc. Okla.
- A study of the yields and quality of succeeding crops when corn and cotton are grown continuously and when grown in combinations with each other and with legumes in two- and three-year rotations. N. C.
- A study of the yields and quality succeeding crops when cotton, corn, and peanuts are grown continuously on the same plats and when they are combined in two- and three-year rotations. N. C.
- A study of the yields and quality of succeeding crops when cotton and corn are grown continuously and when grown in two-, three-, and four-year rotations with small grain and legumes on Cecil sandy loam soil. N. C.
- A study of the yield and quality of succeeding crops when corn and wheat are grown continuously and when grown in two-, and three-year rotations with and without legumes on Porters loam. N. C.
- Buckwheat effect on following crops. R. I.
- Clovers: Effect on following crops. R. I.
- Effect of corn on following crops. R. I.
- Effect of grasses on following crops. R. I.
- Milletts. Effect on following crops. R. I.
- Potatoes and nitrates: Their relation to wheat yields (chemical). Ohio.
- Effect of rye on following crops. R. I.

Investigation of the soy bean in its relation to crop succession.		Ill.
Effect of soy beans on crop that follows.		W. Va.
The effect of soy beans upon the succeeding crop.		Md.
Effects of soy beans on the current yield of corn and subsequent yield of cotton.		Miss.
Annual legumes: Effect of soy beans on wheat yields.		Md.
Growth of wheat after soy beans.		W. Va.
Soil investigations: (f) Effect of sweet clover upon nitrogen accumulation and crop yields.		Idaho.
Forage and miscellaneous crop investigations: (c) Effect of sweet clover upon crop yields.		Idaho.
Forage and seed crop investigations. (5) Determination of the effect on hay and seed yields of growing vetch in rotation or alternation with oats, wheat, corn, and potatoes.		Oreg.
Winter legumes.--To determine the relative values of different winter legumes as measured by their effect on the succeeding crop.		Miss.
Plant food losses from the soil due to different crops.-- Effect of sunflowers on fertility.		Mont.

Control of Insects and Diseases

Rotation studies to control nematodes.	(P)	Ala.
A study of the effectiveness of crop rotation in the control of corn root worm.		N. C.

1/ PHYSIOLOGY

Seed Germination

Physiology of seeds.	(P)	Colo.
Studies of observed variations among germination tests.		Md.
Physiology of seed germination.		Minn.
Germination of cotton seed and growth of the seedlings at low temperatures.	(A)	S. C.

- Seed germination.--To determine (1) the least degree of maturity at which wheat, oats, and barley may be used for seeding purposes; (2) the increase or decrease of ability to germinate during the first year after harvest. Wyo.
- Dormancy studies with winter wheat. (A) Mont.
- Germination of beet seed. N. J.
- Treatment of sugar beet seed. Mich.
- Hard seeds in legumes. N. Y. State.
- A study of seed coats and delayed germination in the sweet clovers. Iowa.
- Longevity of grass and clover seeds. N. J.
- A study of the effect of storage under arid conditions on field-crop seeds. Ariz.
- A study of plant growth and crop production in relation to size and weight of seed. (A) N. J.

Nutrition and Growth

- Amount and rate of growths in certain field crops. N. J.
- Tillering in corn. Ark.
- Weak v. strong young corn plants with regard to grain and forage production. Tenn.
- Factors governing growth and maturity in corn. (A) Va.
- Cotton physiology. (2) Cotton nutrition. Fla.
- A study of the root development of the cotton plant. (P) Ariz.
- Cotton production in relation to soil and climatic conditions. (P) Ariz.
- A study of the factors which influence the growth and development of cotton buds and bolls. (A) S. C.
- A study of the factors causing cotton shedding. (P) Ariz.
- Rice nutrition. Ark.
- The effect of environment on the development of the rice plant. Tex.

- Physiological changes accompanying growth in the potato. N. Y. Cornell.
- Ecological factors affecting growth of potatoes. N. Y. Cornell.

Potato Tuber Development

- Factors affecting tuber-set, keeping quality, and yield of potatoes for use as seed. N. Y. Cornell.
- Potato selection for seed purposes: Tuber-formation studies. Nebr.
- Potato selection for seed purposes: Studies in plant competition in experimental plats. Nebr.
- Potatoes: Relation between the nature of the growth of the plant and the yield of tubers. Wyo.
- Regeneration in potato tubers. (A) Md.
- Respiration and sugar content of individual potato tubers. N. Y. Cornell.
- Potato selection for seed purposes: Breaking the rest period of tubers for early autumn planting. Nebr.
- A study of the effects of sun sprouting and fall greening on potato yields and storage qualities. (P) W. Va.
- Changes in character of sprouting of seed potatoes during the storage period. (P) Ohio.
- Physiological and biochemical aspects of potato storage and transportation. (A) Md.
- Potato selection for seed purposes: Control of hollow heart in Russet Rural New Yorker. Nebr.
- Hollow heart investigation. (Potato.) Mich.
- Potato hollow heart project. Mich.
- Hollow heart of potatoes. Minn.

Miscellaneous

- Physiological studies of cereals. Wash.
- Relation of water losses to dry weight of plants. Mont.
- Frosted potatoes.--To study methods of treating slightly frosted potatoes. Alaska.

Factors influencing the oil content of cotton seed. (A) S. C.

Study of *Trifolium medium*.--This contemplates a study of length of life of plant, its proliferating capacity, and its capacity to produce seed. N. Dak.

The effects of environmental factors on the physiological and morphological responses of legume forage crops. Ky.

Uniform winter hardiness nursery. Mont.

Studies of the effects of uneven stands and of adjacent varieties on yields of corn. N. Y. Cornell.

Carbohydrate variations in leaves and husks in early and late varieties of corn and their relation to moisture and temperature. (P) S. Dak.

Nature of the physiological changes in stored sweet potatoes. (A) Ala

STORAGE AND CURING

Investigations in the drying of agricultural seeds for reduction of moisture content as a preservative measure in storage. N. J.

Corn production and storage investigations. Storage and shrinkage studies. Iowa.

Tobacco curing experiments. Ky.

Role of humidity and temperature in curing. (Tobacco.) Conn. State.

Storage of girasole tubers. Minn.

A study of factors involved in the production, storage, and handling of Irish potatoes. Ark.

Storing first crop Irish potatoes in sweet potato storage house as a means of tiding over unfavorable market periods. N. C.

Irish potato winter storage in the mountain area. N. C.

Investigations in potato culture. Warm v. cold storage of seed stock. Minn.

Potatoes - Storage.--To determine the shrinkage of potatoes under different conditions of storage. Alaska.

A study of the conditions determining successful storage of potatoes, carrots, cauliflower, and cabbage. (P) Idaho.

A study of the factors involved in the production, curing, and shipping of sweet potatoes.	Ark.
Sweet potato.--Curing studies.	Miss.
Sweet potato storage.	N. C.
Sweet potato storage.--A study of methods of storing and relative keeping qualities of different varieties.	Miss.
Sweet potato - storage and freezing test.--To determine the best methods of storing, and the relative keeping qualities of different varieties of sweet potatoes.	

QUALITY STUDIES

Fibers

Microchemical study of the structures and development of fiber cells with special reference to cotton.	N. C.
Factors determining quality of lint in cotton. (P)	Ga.
Cooperative cotton fiber studies.	S. C.
Time of picking as affecting yield, grade, and spinning qualities. (Cotton.)	S. C.
Cotton yields and grades picked at various dates.	Miss.
The ginning of cotton and relation to the market and spinning value of lint.	Tex.
Cotton spinning tests of several varieties.	S. C.
A study of cotton qualities in relation to spinning value. (P)	N. C.

1/

Tobacco

Relation of chemical characters to quality in leaf tobacco.	Ky.
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2/

Milling and Baking

Composition and quality of Montana wheat.	Mont.
Factors influencing the quality of Montana wheats.	Mont.

1/ See also Fertilizers--Tobacco, p. 207.

2/ See also Home Economics--Foods--Manipulation--Milling and Baking, p. 258.

- Effect of stage of maturity on yield, physical characteristics, baking quality, and composition of wheat. N. Dak.
- Relation of test weight per bushel of seed to yield, quality, and composition of wheat. N. Dak.
- Wheat investigations. (a) A study of some factors that affect the quality of wheat.--A study of the effect of different systems of fertilization, variety, and climate on the quality of wheat, etc. (P) Okla.
- Methods of sampling wheat for protein content. Mont.
- Protein survey.--Factors influencing protein content of wheat. N. Dak.
- High and low protein seed wheat. N. Dak.
- Factors which influence the protein content of hard spring wheat. (P) N. Dak.
- The relation of yield and protein content of wheat to nitrogen content of the soil under different systems of cropping. (A) Idaho.
- Michigan wheats and flours. Mich.
- Relation of protein content of seed to protein content of crop. N. Dak.
- Wheat and flour investigations.--Studies of the chemical aspects of certain milling processes. Chemical and milling tests on wheat produced in various agronomic experiments and comparative chemical and milling behavior of Kanred and other winter varieties. Kans.
- Study of factors affecting the gluten quality in bread wheats. (A) Ariz.

Miscellaneous

- Potatoes: Cooking qualities as influenced by the amount and kind of potash carrier. R. I.
- Beet sugar. (P) La.
- Peanut quality investigations. (P) Ga.
- The popping of popcorn. N. Y. State.

1/
PASTURES AND RANGES

Pasture investigations.	(P)	Idaho.
Pasture experiments.		Ky.
Pasture experiments.		Del.
Pasture experiment.		Pa.
Permanent pasture studies on upland soil.	(P)	Ala.
Pasture improvement.		N. H.
Pasture improvement.		Okla.
Pasture seeding experiment.		S. C.
Range reseeding.	(P)	Utah.
Revegetation and maintenance of California foothill range lands. (a) Range improvement by reseeding.		Calif.
Revegetation and maintenance of California foothill range lands. (b) Range improvement by burning.		Calif.
Pasture renovation.		W. Va.
Investigations in farm crop production. Renovation of nontillable pastures-meadows.		Minn.
A study of the forage on the pastures and ranges of California.		Calif.
Forage and seed crop investigations. (9) Pasture trials on representative hill land consisted of plats of yellow sweet clover, white sweet clover, bur clover, serradella, red clover, smooth brome grass, meadow fescue, tall oat grass, English ryegrass, orchard grass, Kentucky bluegrass, and Italian ryegrass; also mixtures of English rye, Kentucky blue, timothy, and orchard grasses with white and red clover.		Oreg.
The acre value of improved pastures.		Ga.
Pasture and meadow crops for Arkansas.		Ark.
Comparative study of various clovers and grasses for pasture.		Tenn.

1/ See also Legumes and Forage Crops under the several sections.
See also Animal Husbandry--Management--Grazing, p. 78.

- Permanent pastures: A study of plant mixtures best for permanent pastures. Miss.
- Temporary pastures: A study of plant mixtures best for temporary pastures. Miss.
- Studies on the relation of soil type and soil treatment on pasture vegetation. (P) N. J.
- The effect of different systems and intensities of grazing and management on life history and growth of native vegetation in prairie grass pastures. (P) Kans.
- Pasture improvement.--The effects of eight fertilizer treatments as measured by grazing with cattle. Conn. Storrs.
- Pasture investigations: The effects of various fertilizing materials on the yield, composition, and character of the plant growth. Iowa.
- Range improvement.--A study of the value of early protection plus rotation in building low foothill range in Colorado.(P) Colo.
- Crops and fertilizers for pastures. (P) Del.
- Effect of nitrogen fertilization on the carrying capacity of pastures: N. J.
- A study of upland soil.--Meadow and pasture fertilizer experiment. Minn.
- Ecological study of vegetation on a selected number of sheep and goat ranges in Arizona. (P) Ariz.
- Range vegetation of the Edwards plateau. Tex.
- Ecological study of pasture vegetation. Mass.
- The relation of vegetation to habitat on the North Carolina sand ridge areas. N. C.
- Pasturing v. cropping.--To determine the net returns from two equal areas of land, one devoted to rotative cropping (corn, soy beans, wheat and clover), the other to permanent pasture. Both areas to be kept in a high state of fertility by the use of commercial fertilizers and lime. Ohio.

SEED CONTROL

Regulatory

Seed studies. Seed testing survey.	Minn.
Seed testing.	S. Dak.
Seed testing.	Conn. State.
Seed testing and inspection.	Ky.
Seed testing laboratory.	Mo.
Tests of seeds.	N. H.
Seed testing for users of agricultural seeds.	N. Y. State.
Seed investigations and seed control.	Iowa.
Agricultural seed inspection.	Vt.
Identification of seeds submitted to the laboratory from time to time.	Md.
Inspection of seeds sold throughout the State each year.	Md.
Examination of samples taken from seeds sold throughout the State each year.	Md.
Examination of samples submitted to the laboratory each year.	Md.
Purity and germination tests of official seed samples.	N. Y. State.
Administration and direction of work of general office, laboratories and field. (Pure seed law and testing of strains for disease resistance.)	N. Dak.
Seed analysis and crop inspection.	N. Dak.
Studies of changes in weight of various components of seed samples and the resulting effects on the percentage composition.	Md.
Disinfection of seeds.	N. J.

Production and Distribution

Pure seed.	Minn.
Pure seed distribution. (a) Increase and distribution of pure seed of various crops which have been improved.	Idaho.

Forage investigations. (d) Seed production.	Idaho.
Vetch.--Seed production tests.	Miss.
Increase of pure seed. (Crop demonstration.)	Mont.
Increase and distribution of seed.	Wash.
Increasing and dissemination purebred improved seed of cereals and forage crops.	N. Dak.
Pedigreed seed distribution.	Minn.
Production in quantity of carefully selected pedigreed seed of recommended varieties of farm crops.	Minn.
Seed and plant distribution.--To encourage more general and more diversified plantings; provide improved seeds and plants which cannot be obtained elsewhere on the island.	Guam.
Cooperative seed production and distribution.	Minn.
Cooperative experiments. Seed certification (of pedigreed cereal varieties).	Iowa.

Potato Seed Certification

Potato seed certification.	N. H.
Cultural factors involved in the production of certified seed potatoes. (P)	Ohio.
Irish potatoes: Spring crop - certified v. commercial seed. Fall crop - varieties and cultural methods.	Tenn.
Certified v. common seed of Irish potatoes.	Tenn.
A comparison of certified with uncertified Irish potato seed.	Miss.
Certified Irish potato seed test.--To determine the value of certified seed, using Triumph and Cobbler varieties.	Miss.

WEEDS

Effect of weeds upon crop production.	Iowa.
A study of the distribution, habits, and methods of controlling weeds.	N. Y. Cornell.
Weed control. Weed survey of Iowa.	Iowa.
Study of weed control. Control of annual weeds.	Minn.

Weed control experiments.	Mont.
Weed control. Factors influencing the germination of certain weed seeds.	Iowa.
Weed control. A study of the competition between hoary vervain and small ragweed with Kentucky bluegrass in Iowa.	Iowa.
Weed control. (3) Soil treatment.	Oreg.
A test of some chemicals for killing perennial weeds on arable land.	N. Y. Cornell.
Weed control. (2) Sprays.	Oreg.
The control of weeds by cyanamid.	Minn.
A study of some factors influencing the effectiveness of of sulfuric acid and iron sulfate sprays for killing annual weeds in grain fields.	N. Y. Cornell.
A comparative test of some fallow methods for eradicating perennial weeds.	N. Y. Cornell.
Weed eradication investigations.	Idaho.
Weed eradication trials.	S. Dak.
Study of methods of weed eradication.	Wis.
Eradication of weeds by the use of chemicals.	Ohio.
Weed identification and eradication.	Md.
Weed control. (1) Clean culture method.	Oreg.
Control of wild morning glory. (<u>Convolvulus arvensis</u> L.)	Calif.
Bindweed eradication.	Wash.
Eradication of weeds from seed beds and transplant beds and in forest plantations by chemical sprays.	N. Y. Cornell.
Experiments in the eradication of bindweed.	Kans.
The eradication of bindweed with chemicals.	Kans.
Studies of weed control. Vitality of Canada thistle.	Minn.

Canada thistles: Habit of growth.	Ohio.
Studies of weed control. Control of Canada thistle.	Minn.
Weeds.--Perennial sow thistle.	Minn.
Studies of weed control. Control of perennial sow thistle.	Minn.
Studies of weed control. Vitality of perennial sow thistle seed.	Minn.
Physiological and chemical studies on the milkweed.	Iowa.
Comparative study of the herbicides used to control mustard.	N. H.
Coco grass.--Eradication and control studies, using cultural methods and chemical treatments.	Miss.
Weed eradication.--To investigate methods of eradicating Equisetum sp. Treat infested field in different ways; seed with different cereal annuals; summer fallow.	Alaska.
Foxtail burner.--Design and test for destroying foxtail grass in alfalfa fields and other uses..	Calif.
Johnson grass eradication.	N. Mex.
Quack grass control investigations.	Mich.
Studies of weed control. Control of quack grass.	Minn.
Sedgegrass eradication.	Tenn.
A study of the control of wild oats.	N. Dak.
Sweet clover and sheep with crop rotation for the economic control of wild oats, quack grass, and sow thistle.	N. Dak.
Crop rotation and soil management trials.--Comparison of sweet clover and cultivated crops for weed control in rotations.	Minn.
A study of the range weed, rayless goldenrod, and its control. (P)	Ariz.
Eradication of lawn weeds.	Ohio.
Elimination of weeds from lawns and putting greens by physiologically acid fertilizer dressing.	R. I.
Seed studies.--Weed seed cases.	Minn.

MISCELLANEOUS

Cooperative experiments with farmers and State institutions.	Okla.
Investigations in farm crop production (outlying fields).	Minn.
Comparison of crop yields and soil effects from two systems of cropping, (1) grain system, (2) livestock system.	S. Dak.
A crop survey of the Imperial Valley, with a study of the reasons for the crop distributions found.	Calif.
Experimental plat performance and management.	Ohio.
Cotton investigations.--Field plat technic.	Okla.

FOOD TECHNOLOGY^{1/}

Tolerance of microorganisms to food preservatives.	Calif.
Investigation on the clarification of cane juices. (P & A)	La.
Cane sirup. (P)	La.
Relationship of going-in sirup to cut-out in canned fruits.	Oreg.
Manufacture and preservation of cranberry products. (P)	Mass.
Legume and vinegar culture work.	Wash.
Fermentation microbiology. Fermentation test with apple cider.	Mich.
The preservation of sweet cider.	Ill.
A study of the association of alcoholic yeast (<u>Saccharomyces ellipsoideus</u>) and vinegar bacteria (<u>Bacterium pasteurianum</u>) as applied to the making of vinegar as a fruit by-product. (A)	Wash.
Corn black investigations.	Ill.
Studies of the utilization of canning varieties of fruit.	Calif.
Dill pickle investigations.	N. Y. State.
A study of the chemical and bacteriological changes occurring during the processing of olives.	Calif.
Improvement of olive oil manufacture.	Calif.
Utilization of onions by canning. (P)	Mass.
Improving the quality of sauerkraut. (P)	Wis.
Sauerkraut investigations.	N. Y. State.

^{1/} See also Home Economics--Foods--Manipulation--Preservation, p. 259; Bacteriology, p. 99

F O R E S T R Y

SITES

- Study of trees with respect to environment. Idaho. ✓
- The relation of soil type to the production of forest growth. N. J. ✓
- An investigation of the distribution and growth of forest trees as influenced by soil conditions. (P) Conn. State. ✓
- Studies in forest plantations. (a) Comparative growth of various species. (b) Reasons for success or failure. (c) Soil and other site factors necessary for success of each species. Conn. State. ✓
- Distribution and growth of forest trees as influenced by soil conditions.--To determine the basic factors inherent in forest soils which influence the natural growth and distribution of trees. (P) Conn. State. ✓
- Distribution and growth of forest trees as influenced by soil conditions.--To study the natural distribution of tree species and forest types with reference to soil. (P) Conn. State. ✓
- Distribution and growth of forest trees as influenced by soil conditions.--To study the growth and yield of forests as influenced by soil factors. (P) Conn. State. ✓
- Soil conditions essential for success with black locust plantations. Pa. ✓
- Fixing of shifting sands. Mich. ✓

PROPAGATION

- Methods of propagating ornamental trees. Ohio.
- The propagation and distribution of shade trees under the Clarke-McNary Act. Wyo.
- Improvements in nursery practice. Mich.
- Determination of the density of seeding in beds for production of forest seedlings. (a) Conifers: Red pine, Scotch pine, Corsican pine, Norway spruce, European larch for 2-year seedlings. (b) Hardwoods: Tulip poplar for 1-year seedlings. Ohio.
- Determination of the depth of covering the seed. (a) Conifers: Red pine, Scotch pine, Corsican pine, Norway spruce, European larch. (b) Hardwoods: Tulip poplar, red oak, white ash. Ohio.

- Study of the forest trees of Iowa. The germination of forest trees. Iowa.
- Coniferous seedbed study.--To determine (1) the value of fertilizers in seed beds; (2) the value of different amounts of seed; (3) the value of dusts and sprays in preventing damping off. Conn. State.
- Seed production of white pine in Ithaca region. N. Y. Cornell.
- Nursery practice in production of hardwood planting stock. M.Y.Cornell.
- Fertilizing in forest nursery practice. N. Y. Cornell.
- Effect of low temperature on plants.--Frost resistance of seeds and seedlings of forest trees. Minn.
- Propagation of basswood from cuttings. Mich.

PLANTING

- Experimental tree planting. Idaho.
- Forest planting. Reforestation of waste lands with evergreen trees. Iowa.
- Forest planting. Forest nursery. Iowa.
- Forest planting. Hardy catalpa. Iowa.
- Forest planting. Hardy catalpa planting on land subject to overflow. Iowa.
- Forest planting. Carolina poplar planting on land subject to overflow. Iowa.
- Forest planting. Underplanting slow-growing native hardwoods with white pine. Iowa.
- Forest planting. Walnut planting on bottomlands. Iowa.
- Studies of forest planting. Minn.
- Planting to determine spacing and methods of fixing forest trees. Pa.
- Determination of the size of planting stock in the establishment of forest plantations. Ohio.
- Distribution of forest planting stock. Conn. State.
- Cost of producing forest planting stock. Ohio.

REFORESTATION

- Reforestation studies. S. C.
- Studies in reforestation. Miss.
- Forestry.--The reforesting with useful trees of a tract of 200 acres of mountain land denuded by charcoal burners; the reforesting of 80 acres of hill land formerly devoted to cane, pineapples, and other crops. Porto Rico.
- Experiments in establishing artificial forest of different species in New Hampshire. N. H.
- Reproduction of denuded forest lands in Pennsylvania. Pa.
- Ecology of reproduction. (A) Vt.
- The reproduction of native timber trees. Calif.
- Factors which affect natural regeneration in the beech, maple, and mixed oak forest types in the native woods. Ohio.
- Reforestation work.--To obtain definite data on the growth of mahogany under conditions in St. Croix, both on low valley land and on uncultivated hill land. To ascertain the effects of close and more distant planting of mahogany trees, and to obtain data on the rate of growth of certain Eucalypts. Virgin Islands.

MENSURATION

- Studies in forest plantations. (a) Comparative growth of various species. (b) Reasons for success or failure. (c) Soil and other site factors necessary for success of each species. Conn. State.
- Volume, growth, and yield studies of northern forest types. N. Y. Cornell.
- Volume, growth, and yield studies of even-aged second-growth hardwoods; effect of early thinning. N. Y. Cornell.
- Volume, growth, and yield of coniferous plantations. N. Y. Cornell.
- Volume, growth, and yield studies of coniferous plantations by Forestry Department near Ithaca. N. Y. Cornell.
- Volume, growth, and yield studies of coniferous plantations on former Cornell Forest at Axton. N. Y. Cornell.
- Volume, growth, and yield studies of birch and aspen in northern Minnesota. Minn.

- Rate of growth, volume, and yield of hardwood trees. Mich.
- Studies in yield and volume. (Forest trees.) Minn.
- Rate of growth and possible yield of woodlots. Mich.
- Form and growth of certain timber species in California.
 (a) Stem form and form variation of timber trees. (b)
 Development and increment of even-aged timber stands. Calif.
- Adaptation and rate of growth of plantations of the important
 forest tree species. Ohio.
- Growth study of windbreak and shade trees adapted to Minnesota
 conditions. Minn.
- Forest plantings to determine growth and yield. Pa.
- Experimental plantations on a sandy tract at Rainbow. (c)
 Studies on growth and habits of several species of conifers
 and hardwoods. Conn. State.
- Sample plots for growth and yield. Pa.
- Permanent sample plots in Saratoga and Broome Counties. N. Y. Cornell.

MANAGEMENT

- Management of the Cloquet Forest. Minn.
- Working plan for the Cloquet Forest Experiment Station area. Minn.
- Experimental plantations on a sandy tract at Rainbow. (b)
 Methods of management of species of conifers and hardwoods
 that have survived. Conn. State.
- Agricultural possibilities of logged-off lands. Idaho.
- Possibilities of cut-over land in Minnesota. Minn.
- The relation of forest grazing to the deterioration of
 forest stands. Ohio.
- Possibilities of scrub oak lands. Mich.
- Study of development of hardwood plantation on soil under
 cultivation. N. Y. Cornell.
- Factors affecting forest management in California. (a) Time
 study of tractor logging. (b) Cost of selective logging.
 (c) Status of forest lands. Calif.

The influence of fertilizers on conifers, hardwoods, ornamentals, and shade trees.	Ohio.
Determination of the value of chemical fertilizers in the production of different classes of forest planting stock.	Ohio.
Tree injury from abnormal food supplies.	Y Mont.
Pruning evergreen plantations.	Mich.
Study of thinnings and improvement cuttings in even-aged second-growth hardwood stands.	N. Y. Cornell.
Effect of thinning in white pine (at Shaker Station). Three grades of thinning.	Conn. State.
Experiments in immature white pine stands.	N. H.
Effect of thinning in hardwoods (at Quassipaug Lake). (One grade in chestnut oak).	Conn. State.
Thinning of jack and Norway pine.	Minn.
Method of killing trees to prevent production of root suckers and stump sprouts.	N. Y. Cornell.
Conditions affecting borer injury in black locust plantations.	N. Y. Cornell.

FARM WOODLOTS

Woodlot management.	Pa.
Management of the native woodlot.	Iowa.
Developments of methods of silvicultural management for woodlots in central and southwestern New York.	N. Y. Cornell.
Working plans. College woodlots.	Pa.
The effect of grazing in the woodlot.	Iowa.
The regeneration of the planted woodlot.	Iowa.
Woodlot study.	Minn.
Studies of farm woodlands.	Idaho.
Effectiveness of the shelter-wood system of regeneration in a typical understocked, deteriorated woodlot.	N. Y. Cornell.
Harvesting, manufacturing, and marketing small trees from the farm woodlot.	Pa.

WINDBREAKS

Farm windbreaks.	(P)	Idaho.
Windbreak planting investigations.		Minn.
Experiments in general horticulture. Windbreak - Forestry.		Minn.

1/
FOREST PRODUCTS

The determination under given conditions of the best application of the three fundamental principles of kiln-drying of lumber, namely, circulation, humidity, and temperature.		Pa.
Relative durability of Idaho woods.		Idaho.
Investigations in forest products.--Marketing forest products in Iowa.		Iowa.
Chemical studies on forest products.		Minn.

SPECIES TESTS

Introduction of exotic trees.		Mich.
Forest tree investigations. Varietal and cultural tests.		Kans.
Fruit and forest tree trials.		Fla.
State forest nursery.--Testing of trees and shrubs suitable for windbreaks, timber, or landscape purposes.		Kans.
Crop and variety tests of windbreak trees.		Oreg.
Testing the varieties of trees for windbreaks and for ornamental use.		Wyo.
Testing the shade and shelterbelt trees best suited to the Great Plains region of northeastern Wyoming.		Wyo.
Testing of the varieties of shade and shelterbelt trees best suited to southeastern Wyoming.		Wyo.
Adaptation of tree species for underplanting and interplanting native timber stands.		Ohio.
Experimental plantations on a sandy tract at Rainbow. (a) Comparison of a wide variety of conifers and hardwoods.		Conn. State.

1/ See also Agricultural Engineering--Materials, p. 44.

Tree studies. White pine.	Iowa.
Tree studies. European larch.	Iowa.
Tree studies. Hardwood trees for Iowa planting.	Iowa.
Tree studies. Evergreen trees for Iowa planting.	Iowa.
Tree studies. Cottonwood.	Iowa.

MISCELLANEOUS

Forest plantations.	Mich.
Forest Experiment Station.	Ohio.
Hybridization of forest trees.	Mich.
Fire damage to plantations.--Ability of red pine to survive injury by fire.	N. Y. Cornell.
Effect of forest fires on wooded slopes.	Iowa.
The relation of forest fires to the deterioration of second-growth hardwood forest stands.	Ohio.
A study of tolerance of forest trees. (A)	Vt.
Light relations of forest production.	Minn.
Determination of the degree of shading required by both conifers and hardwood planting stock.	Ohio.
The tolerance of conifers to insecticides.	Ohio.

1/
G E N E T I C S

BREEDING METHODS

Inbreeding.	Ohio.
Studies of animal inheritance and reproduction. Studies of effects of inbreeding upon size, age of sexual maturity, litter size, vitality, etc. of guinea pigs.	Kans.
A long-time study of the effect of inbreeding and outcrossing.	Calif.
Systems of mating.--Line breeding as compared to outcrossing.	S. C.
Line breeding compared to outcrossing with Holstein dairy cattle.	N. J.
Line breeding v. outcrossing.	W. Va.
Line breeding of herd.	N. Y. State.
Inbreeding swine as a basis for improvement.	Minn.
Studies of different breeding systems with swine. Inbreeding v. outcrossing.	Iowa.
Studies of two different breeding systems with swine. Limited inbreeding and outbreeding.	(A & P) Okla.
A genetic study of inbreeding in fowls (White Leghorns). (a) Production of homozygous strains for use in future experiments. (b) Continued close inbreeding on 12 characteristics, including fecundity, fertility, hatchability, weight and shape of eggs, body size, growth rate, etc. (c) Study of the inheritance of traits tested under (b).	(A) Conn. Storrs.
Determination of genetic laws governing results in inbreeding of poultry.	(A) Mass.
The effects of continued inbreeding.	(A) Wis.
Degree of close breeding in maize.	Nebr.
The effect of inbreeding and crossing on corn in relation to vigor, rate of growth, productiveness, and variability.	(A) Conn. State.
Methods for the improvement of naturally cross-fertilized plants by selection in self-fertilized lines.	(A) Conn. State.
A new line breeding method of corn improvement.	(P) Iowa.

1/ See also Field Crops--Breeding, p. 139; Animal Husbandry--Breeding, p. 87; and Horticulture--Breeding, p. 263.

- Breeding miscellaneous field crops.--To determine the value of selection in self-fertilized lines as a means of improving red clover. Minn.
- Corn breeding investigations.--Improvement of corn through inbreeding and subsequent cross-breeding. Minn.
- Corn improvement. (1) Self-fertilization of lines within corn varieties to be used in crossing for the production of improved high-yielding varieties. (P) N. D.
- Methods for the improvement of naturally self-fertilized plants, with particular attention to tobacco. (A) Conn. State.
- Plant breeding. A study of effect of heterozygosis on yield and quality of tomato hybrids. N. H.
- Wheat breeding investigations.--Pure line studies with wheat. Iowa.
- Oat breeding investigations.--Pure line studies with oats. Iowa.
- Selection of pure lines of oats and beans. N. Y. Cornell.
- Investigations in cereal breeding.--To isolate pure forms of rye by continuous selection. Minn.

GENERAL INHERITANCE STUDIES

- Study of the laws of inheritance through hybridization. (A) N. Y. Cornell.
- The principles of heredity in certain plants. Calif.
- A study of the inheritance of characters in fruits. Minn.
- Inheritance study of cereals. (A) Wash.
- Inheritance studies with small grains. (A) Minn.
- Genetic studies of barley with special reference to the production of smooth-awned types. N. Y. Cornell.
- Genetic analysis of maize.--Including (1) the inheritance of Mendelian characters in maize, (2) the relative frequency of crossing-over in microsporogenesis and megasporogenesis, (3) the occurrence and frequency of mutation in the factor of pericarp color in maize, and (4) competition among male gametes in maize. (A) Mo.
- A study of the genetics of corn. N. Y. Cornell.
- Inheritance and improvement in corn. (P) Tex.

Corn breeding investigations. A study of the inheritance of certain characters of corn.		Minn.
Mendelian studies with Guam corn hybrids.		Hawaii.
Field corn--Ear row and character inheritance work.		Mich.
A genetic study of hereditary characteristics in corn, involving their linkage relations and variability. (A)		Conn. State.
Inheritance of various characters in rye.	(A)	Ga.
Genetic interrelations of dwarf forms in oats.		N. Y. Cornell.
Studies of inheritance in oats.		Pa.
Studies of Mendelian factors with wheat, oats, aegilops, and rye.		N. Y. Cornell.
Inheritance in grain sorghums.	(A)	Tex.
Inheritance of head characters in kafir.	(P)	Tex.
A study of inheritance in black-hulled white kafir. (A)		Okla.
Inheritance studies in grain sorghum and cotton. Crop breeding investigations.		Okla.
Genetics of cotton. Studies in inheritance of cotton.		Fla.
Fundamental study of inheritance in cotton.	(A)	Tex.
Inheritance of contrasted characters (cotton).	(A)	Miss.
Study of the inheritance of sheading in upland varieties of cotton.	(A)	Ariz.
Potato breeding.--Inheritance in the potato.		Minn.
A study in the inheritance of beans.		Pa.
Cabbage characters and their heredity.	(P)	Del.
Hybridization studies with cabbage.		N. Y. Cornell.
A study of inheritance in lettuce.	(P)	Pa.
A study of inheritance in the tomato.	(P)	Pa.
Breeding peaches. The genetic composition of peaches. (A)		Mass.

Genetic investigation of citrus and breeding to produce superior varieties.		Calif.
Genetic investigations in the genus <i>Crepis</i> .	(P)	Calif.
Inheritance studies in poultry.	(P)	Iowa.
Genetic studies with poultry.		Calif.
Inheritance of certain characters in poultry	(P)	R. I.
Studies on the inheritance of morphological characters in poultry. (a) Inheritance of sex-linked plumage characters, (b) Linkage between several sex-linked genes for plumage characters. (c) Inheritance of other characters.	(A)	Conn. Storrs.
Improvement and conservation of farm poultry. Inheritance of contrasting characters in White Leghorns and Jersey Black Giants.		Kans.
Inheritance and linkage of characters in poultry.		Ill.
Studies of inheritance in pigeons.		Wis.
The genetics of the poecilid fishes.		N. Y. Cornell.
Inheritance in certain Orthoptera.	(A)	Kans.

SPECIES HYBRIDS

(1) Inheritance in the cross <i>Medicago sativa</i> X <i>M. falcata</i> .		
(2) Inheritance of seed-producing capacity in self-fertilized lines.	(A)	N. Dak.
The study of species hybrids in the genus <i>Digitalis</i> .		Pa.
Oats. Inheritance in a cross of <i>Avena sterilis algeriensis</i> and <i>A. nuda inermis</i> .		Ohio.
Study in the origin of species or the development and improvement by hybridization in the genera <i>Viola</i> and <i>Rubus</i> .	(A)	Vt.
Hybridization in the three subspecies of wheat: <i>Triticum sativum</i> , <i>T. durum</i> , and <i>T. dicoccum</i> . Inheritance of stem rust resistance of wheat.	(A)	N. Dak.
Winter wheat-rye breeding (crossing).		N. Dak.
Inheritance in Brahma and Hereford cattle.	(A)	Tex.

COLOR INHERITANCE

- Inheritance of flower color and flower form in Phlox drummondii and of flower color in Mirabilis jalapa. Pa.
- Improvement and conservation of farm poultry. Inheritance of eye-color. Kans.
- An analysis of barring in the Barred Plymouth Rock. (P) Ky.
- A genetic study of Rhode Island Red color. Mass.
- Inheritance of color in crosses between the various breeds of the domestic turkey. Mo.
- The inheritance of color variations and other characters in swine, with special emphasis on belting in Hampshires. Mich.
- Studies of animal inheritance and reproduction. Studies of color inheritance in guinea pigs. Kans.
- Blue gray breeding. Iowa.

INHERITANCE OF PRODUCTION CHARACTERS

Cattle.

- Bowlker hybrid dairy herd.--To study the genetic behavior of some of the observable and measurable characters of dairy cattle. Ill.
- Testing dairy sires. Ill.
- The mode of inheritance of milk production and associated characters in cattle. (A) Me.
- The inheritance and transmission of the characters "capacity for fat production!" Mo.
- Inheritance and physiology of the secretions of milk solids. Me.
- Chemical composition of cows' milk in parents and hybrid offspring. Me.
- Inheritance of the size of the fat globule in milk. Ill.
- The inheritance of fat percentage in milk of dairy cows. Conn. Storrs.
- Study of method of inheritance of color in skin secretions and milk. Ill.
- A study of the transmission of measurable characteristics in a family of Holstein-Friesian cattle. Del.

Cattle. (Cont.)

- A study of the inheritance of slope of rump of cattle. Wis.
- Experimental analysis of the heredity factors determining milk and meat production in cattle. (A) Wis.
- Inheritance in Brahman and Hereford cattle. (A) Tex.

Sheep and Goats.

- Fertility and milk production of sheep. (A) N. H.
- A genetic study of Merino types. Ohio.
- A study of type and inheritance in Angora goats. Tex.
- A study of the inheritability of wool by market grades. N. Dak.
- Inheritance of fleece characters in purebred and crossbred sheep. Breeding sheep for wool production. (A) Wyo.
- A genetic study of the color of the fleece, hair, and skin of sheep. Ohio.
- Sheep breeding investigations. Study of the inheritance of fur qualities of Karakul sheep. Tex.

Poultry.

- A study of the transmission of fertility. N. C.
- Statistical study of heredity of Rhode Island Red breed of poultry. (P) Mass.
- Inheritance of type in Single Comb White Leghorns. N. Y. Cornell.
- Inheritance of egg production. N. C.
- Inheritance of egg production. Oreg.
- The inheritance of egg production in Single Comb White Leghorns and Barred Plymouth Rocks. Pa.
- Improvement and conservation of farm poultry. Inheritance of egg production. Kans.
- Inheritance of ability to lay eggs of certain weight. (A) R. I.
- Inheritance of size of eggs. N. C.
- The inheritance of weight, shape, color, and texture of shell of eggs in the Single Comb White Leghorn. Idaho.

Poultry. (Cont.)

Egg investigations. (a) Comparison of shape, size, and color of eggs produced by individual hen. (b) Comparison of shape, size, and color of the eggs of dam with those of her progeny. N. Dak.

A study of the genetic and other factors involved in the hatching of eggs. (a) Breeding. (b) Measurement of other characteristics. (A) Conn. Storrs.

The inheritance of hatchability of eggs and livability of chicks in Single Comb White Leghorns and Barred Plymouth Rocks. Pa.

Broodiness in poultry. (A) Mass.

Plants.

Corn inheritance of ear and stalk characteristics and their relation to yield. Ohio.

A study of the inheritance of certain characters in relation to yield and quality in wheat, oats, sweet corn, beans, and apples. (A) Me.

The genetics of greenhouse cucumbers in relation to shape, size, color, and set of fruit. Mass.

The inheritance of shape in curcubita fruits. Conn. Storrs.

Inheritance of chemical character in crosses of dent and sweet corn. Iowa.

Cotton breeding. A study of the inheritance of fruit characters in cotton. (A) Ark.

Mode of inheritance of fuzzy tip pattern on cottonseed and its use in cotton improvement. (A) N. C.

Abnormalities.

The origin, nature, and inheritance of apparent mutations in certain plants. Calif.

Investigations of oak-like walnuts. Calif.

A genetic study of aberrant and false wild types in Kanota oats. (A) Kans.

Congenital epithelial defects of calves. Wis.

A genetic study of undescended testicles in sheep. Ohio.

Inheritance of the ridgling characteristics in goats. Tex.

Abnormalities. (Cont.)

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| Study of hernias in swine. | (A) | Ohio. |
| Studies of animal inheritance and reproduction. Studies of inheritance of defects in guinea pigs. | | Kans. |
| A study of a specific vestigial wing character in chickens. | | Ark. |
| The selection of a strain of fowls having two sets of reproductive organs. | | W. Va. |

Miscellaneous.

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| Inheritance of factors making for rapid gain in Poland-China hogs. | | Ill. |
| Studies of animal inheritance and reproduction. Studies of the inheritance of size in rats. | | Kans. |
| Studies of animal inheritance and reproduction. Studies of the inheritance of size in rabbits. | | Kans. |

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INHERITANCE OF DISEASE RESISTANCE

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| Investigations of inheritance of disease resistance in plants. | | Wis. |
| Investigations of the inheritance and control of smuts in cereals. | | Calif. |
| The development of disease-resistant varieties of farm crops.
The genetics of biologic forms of <u>Puccinia graminis</u> . | | Minn. |
| Hybridization of the three subspecies of wheat: <u>Triticum sativum</u> , <u>T. durum</u> , and <u>T. dicoccum</u> . Inheritance of stem rust resistance of wheat. | (A) | N. Dak. |
| A study of the heredity of resistance in potato to <u>Phytophthora infestans</u> . | | N. Y. Cornell. |
| Selection and crossbreeding of tobacco. (c) Inheritance of disease resistance in tobacco to the root rot disease caused by <u>Thielavia</u> . | | Wis. |
| Inheritance of wilt resistance in tomato crosses. | | Ohio. |
| A study of the heritability of resistance and susceptibility to infectious abortion. | | Wis. |

1/ See also Field Crops--Breeding--Disease Resistance, p. 151; Horticulture--Breeding--Disease Resistance, p. 268; and Plant Pathology--Disease Resistance, p. 358.

- Genetic studies of resistance of chicks to bacillary white diarrhea. (A) Ill.
- Breeding for resistance to fowl typhoid in poultry. (P) Iowa.
- Inheritance of resistance to hog cholera. Ill.
- Breeding for natural resistance to hog cholera. Iowa.

PHYSIOLOGY OF REPRODUCTION

- Physiology of reproduction. Minn.
- Physiology of reproduction in domestic birds. Calif.
- A study of the physiology of reproduction in poultry. (A) Me.
- Studies of animal inheritance and reproduction. Studies of the physiological phases of reproduction in guinea pigs. Kans.
- Relation of internal anatomy to intensity, cycle, and total annual egg production. N. Y. Cornell.
- Multiple births in cattle. Wis.
- Effect of arsenic (Fowler's solution) upon the reproductive powers of the individual and its offspring. (A) Ill.
- The effects of alcohol on the male germ cells of rabbits, measured by double matings. N. Y. Cornell.
- Mutilation of ovarian tissue in mature hens.--To determine the effect on subsequent egg production of mutilating the ovarian tissue of hens with known low egg records. Ill.
- Investigation of the influence of environment on the embryonic and post-natal development of mammalia. A study of hyper- and hypothyroidism in the mother as affecting the offspring. (P) W. Va.
- Studies of hairlessness (hypotrichosis) in animals. (A) Ill.
- The effect of temperature and moisture conditions on inheritance in Orthoptera. (A) Kans.
- A study of the causes of cross and self-sterility in the apple, through a cytological and genetic study of the sterility and compatibility relationships of different varieties through pollination experiments. (A) Me.
- Sterile spikelets in wheat. (A) Del.
- Sterility of hybrids of Nicotiana. Pa.

CYTOLOGY

Cytology of maize, particularly a triploid race.	N. Y. Cornell.
Cytology of certain strains of maize.	N. Y. Cornell.
Cytology of maize and maize hybrids.	N. Y. Cornell.
Studies on chromosome structure.	N. Y. Cornell.
Cytological studies in cereals to determine the chromosome number and behavior of species hybrids in relation to sterility and segregation of hereditary characters in such hybrids.	(A) Me.

MISCELLANEOUS

Studies of influence of environment on plant characters.	N. Y. Cornell.
Variation in the common daisy.	N. Y. Cornell.
The plant-breeding value of mutation and other types of variation in wild and cultivated plants.	(A) N. Y. Cornell.
The behavior of a single gene in development.	Conn. Storrs.
Relative influence of sire and dam on the offspring.	Oreg.
The inheritance of habits, with special reference to mental traits.	N. C.
The inheritance and racial distribution of blood groups in man.	N. C.
Sexuality in common asparagus.	Calif.
The transmission of sex in dairy cattle.	(A) Ill.
Relation of age of dam to quality of offspring. (1) A comparison of milk and butterfat production of daughters of young dairy cows with production of later daughters of same cows. (2) Also rate of growth, weight, mortality, and size of litters from immature and mature female mice.	Ill.
A study of multiple factors in invertebrates.	N. C.

HOME ECONOMICS1/

HUMAN NUTRITION

- Phosphorus intake of the preschool child as shown by a dietray study made by the individual method. (P) Ohio.
- A study of seasonal variation in growth of preschool children in Ohio. (P) Ohio.
- Factors affecting seasonal variation in growth curve of children. (P) Kans.
- Adequacy of diet of Texas school children. (P) Tex.
- A study to determine the apparent prevalence of nutritional diseases in rural school children between the ages of 6 and 12 years in 5 representative counties in Florida. (P) Fla.
- Food consumption of school children in relation to health. (P) Mass.
- Basal metabolism of women 14 to 20 years of age. (P) Ohio.
- An investigation of the metabolism of obesity. (P) Ky.
- Effect of atirachitic factor and ultra-violet irradiation on calcium metabolism of women. (P) Mich.
- Nutritional studies with meats. (P) Iowa.
- The relation of diet to blood formation and regeneration.
(1) The influence of the vitamins on the rate of blood regeneration. (P) Minn.

FOODS

Composition

General.

- Human food.--Its composition, utilization, and preservation. Tex.
- Investigations of the relative merits of various root crops as human food, stock feed, and for commercial starch production. Hawaii.
- Studies in human nutrition.--Caloric values of foods. (P) N. H.
- Comparison of the food value of different grades of milk. Va.

1/ See also Animal Husbandry--Animal Nutrition, p. 46.

General. (Cont.)

Studies regarding the nutritive value of milk, its suitability for food for children and animals, conditions which affect its nutritive value, tolerance, and related questions. (P & A) Vt.

Nutrition of infants.--(Physical character of curd of cow's milk). Utah.

Use of citric acid and its salts in (a) butter starters, (b) acidified milk for infant feeding. Wis.

Analysis of diabetic foods. Conn. State.

Minerals. (See also Animal Husbandry--Animal Nutrition--Mineral Metabolism, p. 50.)

Influence of soil composition and treatment on the ash content of food plants. (P) N. J.

The mineral content of vegetables as affected by the method of cooking. (P) Iowa.

Utilization of calcium and phosphorus from fresh, dried, and evaporated milk. (P) Kans.

An investigation of the iron content of edible wild greens of Maine. (P) Me.

Conservation of iron in vegetables through methods of preparation and cookery. (P) Miss.

The iodine content of Idaho-grown foods in relation to the prevalence of goitre. Idaho.

Vitamins. (See also Animal Husbandry--Animal Nutrition--Vitamin Studies, p. 52.)

Vitamin content of foods relating to human nutrition. (2)
Vitamin content of cabbage, sauerkraut, relishes, celery-cabbage, cherries, peaches, rhubarb, and string beans. (P) Kans.

Vitamin content of widely used Georgia foods, namely, turnip greens, collards, peaches, and cantaloupes. (P) Ga.

An investigation of the vitamins of mustard greens. (P) Ky.

The relative antirachitic value of fish oil from burbot livers v. the best commercial cod-liver oil, and a study of the antianemic value of burbot fish livers. Wis.

The vitamin content of vegetables as affected by cultural methods and degree of maturity. (P) Iowa.

Influence of soil composition and treatment on vitamin content of food plants. (P) N. J.

Vitamins. (Cont.)

Vitamin A and D content of certain blanched and unblanched vegetables.	(P)	Mich.
The antiscorbutic content of tomatoes from different sources and produced under different conditions.	(P)	Wis.
The effect of milling processes on the vitamin B content of cereal products used for human food.	(P)	Ill.
The distribution of vitamin B in the kernels of unmilled cereal grains.	(P)	Ill.
The effect of storage upon the vitamin C content of the Russet Burbank potato of Idaho.	(P)	Idaho.
The vitamin content of vegetables as affected by storage.	(P)	Iowa.
Vitamin content of vegetables in winter storage.	(P)	Mont.
The effect of methods of home storage on vitamin D in eggs.		Wis.
The vitamin content of honeys as affected by their preparation for market.	(P)	Iowa.
Influence of methods of handling foods on their vitamin content.	(P)	Mo.
Determination of relative vitamin content of certain foods and the change which take place in the process of preparation.	(P)	N. Y. Cornell.
The influence of commercial condensing processes upon the vitamin content of cows' milk.	(A)	Pa.
The determination of the effect of method of drying on the vitamin content of dried fruits.	(P)	Calif.
To find the causes of vitamin destruction in cooked and canned foods.--To test the theory of oxidation as cause of vitamin C destruction.		Mo.
Vitamin content of some commercially canned vegetables.	(P)	Mich.
Study of the vitamin C content of vegetables canned in the pressure cooker.	(P)	S. Dak.

Manipulation

Milling and Baking. (See also Field Crops--Quality Studies--Milling and Baking, p. 228.)

Cereal and flour investigations.		Minn.
A study of the quality and suitability of wheats for the manufacture of food products.	(A)	N. Dak.
Standardization of methods in experimental baking procedure.		Nebr.
Bread baking with Arizona wheats.	(P)	Ariz.
The milling and baking qualities of Ohio wheats.	(P)	Ohio.
Baking qualities and methods of baking of Wyoming flour.	(P)	Wyo.
A study of wheat flours milled in Illinois in relation to their use in baking.	(P)	Ill.
Influence of climate upon baking quality of hard wheat.		Mont.
The relation of certain chemical and physical-chemical characteristics of Nebraska wheat to its milling and baking quality.	(A)	Nebr.
Tempering factors affecting the quantity and quality of wheat flours.	(P)	Kans.
Effect of storage on milling and baking quality and chemical composition of wheat.		N. Dak.
The biochemical changes in frosted wheat and their effects on the breadmaking quality and market value.	(A)	Mont.
Factors which affect macaroni quality of Durum wheats (especially the properties of the starch).		N. Dak.
Baking of flour mixtures at high altitudes.	(P)	Colo.
Preparation and study of cereal glutelins.	(A)	Nebr.
Protein investigations. The chemistry of glutelins from the cereal grains.		Minn.
Protein investigations. The proteins of wheat flour.		Minn.
The strength of wheat flour.	(A)	Minn.

Cooking. (See also Animal Husbandry--Meats, p. 92.)

Factors influencing the quality and palatability of meat.

Methods of cooking meats.

(P)

N. Dak.

Study of an investigation of temperature and time of cooking
on the quality and palatability of meat.

(P)

Mo.

Effect of alfalfa hay, alone and with varying amounts of grain,
on grade, quality, and palatability of beef from yearling
steers. (Cooking and palatability.)

(P)

Mont.

A study of methods of preparing pork products.

(P)

Minn.

A study of the causes for variation in cooking qualities of
white potatoes.

(P)

Ky.

The effect of the use of salt in cooking vegetables.

(P)

Ohio.

Preservation. (See also Food Technology, p. 237.)Investigation of some of the conditions affecting the keeping
quality of certain foods.

Ind.

Changes in food during storage.

Utah.

Food preservation. (1) Vegetables.

(P)

Mont.

Heat-resisting bacteria of fresh and canned vegetables and
their relation to spoilage.

(A)

Colo.

Studies of the thermal death point of microorganisms in fruit
and vegetable products.

Calif.

Determination and identification of the organisms which cause
spoilage of canned vegetables in the South.

(P)

Fla.

Microorganisms of the canning industry.

Iowa.

Can the time table for processing in cold-pack canning by use of
the water bath be used for processing in a household steamer?

Ind.

To carry on investigation for developing methods looking toward
the economic utilization of surplus food products with special
reference to the problems of the home. Standardization of
cherry preserves.

(P)

W. Va.

Studies of the principles of preservation of fruit juices.

Calif.

Study of the factors that induce jellying.

(A & P)

Del.

Preservation. (Cont.)

- Study of the factors affecting the jellying of kumquats,
loquats, roselle, and guava. (P) Fla.
- Extraction of fruit juices in manufacture of fruit jellies. (P) Mass.
- A study of the factors involved in the production, marketing,
and canning of tomatoes. Ark.

HOME MANAGEMENT

Food Consumption and Expenditures

- Food habits of Georgia rural people. (P) Ga.
- Food consumption and food expenditures of farm families in
relation to standards of requirement and income. (P) Idaho.
- Study of food habits of people in two contrasting areas in
Mississippi. (P) Miss.
- Food consumption and expenditures of negro tenants in Yazoo,
Mississippi Delta. (P) Miss.
- Food consumption by farm and village families. A study of
consumers' demand. (P) N. Y. Cornell.
- Food habits of Utah families. (P) Utah.
- An investigation of food expenditures and dietary standards
of rural families in Virginia. (P) Va.
- Food consumption and expenditure of farm families. (a) Study
of food habits. (P) W. Va.
- Studies of food expenditures of farm families in Wisconsin. (P) Wis.
- A study of food expenditures and consumption of farm families. (P) Wyo.

Use of Time

- Routine and seasonal work of the housekeeper. (P) Nebr.
- Present use of time by farm homemakers. (P) Oreg.
- Use of time by rural homemakers. (P) R. I.
- Study of present use of time by farm homemakers in the State of
Washington. (P) Wash.
- How farm families use their leisure. (P) S. C.

Equipment

Basic factors in farm home planning.	(I)	Ark.
The Nebraska rural kitchen.	(P)	Nebr.
Water carried for household purposes.	(P)	Nebr.
The application of electricity in the farm home.	(P)	Iowa.
Study of the use of electric power on Nebraska farms. (d)		
Electrically operated refrigerators for farm use. (P)		Nebr.
Use of labor-saving devices in preparation of meals. (P)		S. Dak.
Fuels for cooking purposes in rural homes.	(P)	Ind.
Kerosene cooking stoves.	(P)	Nebr.
Lighting with portable lamps.	(P)	Nebr.

1/
Cost and Standard of Living

Cost of family living on the farm.		Mo.
Index number of fluctuations in the money cost of goods purchased by farm families for the use of the family. (P)	N. Y. Cornell.	
Index number of cost of living in small towns in New York State. (P)	N. Y. Cornell.	
A study of the cost of family living on Ohio farms. (P)		Ohio.
The farm woman's part in establishing the economic status of the family by her standard of management, with special reference to clothing. (P)		Okla.
A study of methods of household budgeting and accounting. (P)		Vt.
The relationship of housing to the health of the family in rural homes. (P)		Va.
A study of standards of living in Montana public school dormitories. (P)		Mont.
A quantitative and qualitative study of farm homes in Minnesota with special emphasis on the influence of the farm upon the management of the home and the life of the family. (P)		Minn.
Standards of living in farm homes. (P)	Conn. Storrs.	
Study of consumption habits of Iowa farm families. (P)		Iowa.

1/
See also Rural Sociology--Cost and Standard of Living, p. 368.

CLOTHING AND TEXTILES

- Study of kind and quality of materials in womens' coats from
typical retail stores of the State. (P) S. Dak.
- Investigation of fastness of color of cotton materials
guaranteed fast to washing. Mo.
- Protective value of certain clothing fabrics. (P) Kans.
- Factors affecting penetration of ultra-violet rays of the
sun through animal and vegetable fiber. (P) Utah.

HORTICULTUREBREEDING

Fruits

General.

- Fruit breeding. N. Y. State.
- Fruit breeding and variety testing. Mich.
- Minor work with fruit. Varieties and breeding. Oreg.
- Improvement of hardy wild fruits of the Northwest by breeding and crossing. (A) S. Dak.
- Hardiness studies in fruit breeding. (1) The inheritance of hardiness. (2) A determination of the hardiness of seedlings by artificial freezing tests. (3) An investigation of the plants. (4) A determination of the conditions under which plants are most likely to be injured by low temperatures. (A) Minn.
- Fruit improvement work. Mont.
- Progeny and bud selection investigations. Fla.

Apples.

- Apple breeding. Ohio.
- Apple breeding. (A) Iowa.
- Apple breeding. (A) Ill.
- Apple breeding investigations. (A) Idaho.
- Breeding new varieties of apples. (P) Me.
- Breeding apples for late-blooming habit. Mo.
- Hybridizing apples with the object of procuring a later-blooming variety of high quality. Ark.
- Fruit breeding, especially apples and strawberries. Nebr.
- Breeding hardy fruits: Apples, grapes, plums, raspberries, currants, gooseberries, Pembina (American cranberry bush), chokecherry, and Juneberry. N. Dak.
- Apple seedlings.--To grow apple seedlings for obtaining strains of trees suitable to Alaskan conditions. Alaska.

Peaches.

- Peach breeding, technical phase. N. J.
- Peach breeding. (A) Ill.
- Peach breeding for hardy sorts. Mo.
- Peach breeding for the improvement of quality and hardiness in an early peach. N. C.

Grapes.

- The breeding of early colored grapes. Md.
- Rotundifolia grapes. Hybridization with other grapes. (A) N. C.
- Breeding Vitis rotundifolia. Ga.

Small Fruits.

- Raspberry breeding. Ill.
- Breeding and climatic factors influencing raspberries. (P) Ga.
- Gooseberry breeding.--To secure a more productive variety of gooseberries. Ill.
- Plant breeding. Plant selection work with blueberries. Miss.
- Hybridizing cane fruits to procure heavy-yielding varieties, ripening early enough to avoid our drought conditions. Ark.

Strawberries.

- Strawberry breeding.--To produce varieties of strawberries with good flavor and shipping qualities. Alaska.
- Hybridizing and selecting strawberries with a view of increasing yield and quality over our present standard variety, the Klondike. Ark.
- Breeding work with fruits.--Breeding strawberries, using Ettersburg 121 as the female parent with commercial varieties and improved seedlings as the male parents. Oreg.
- Breeding horticultural plants. (a) Strawberries. Utah.
- Fruit breeding.--Especially apples and strawberries. Nebr.

Miscellaneous Fruits.

- Breeding hardy fruits: Apples, grapes, plums, raspberries, currants, gooseberries, Pembina (American cranberry bush), chokecherry, and Juneberry. N. Dak.
- Pear breeding. Oreg.
- Date breeding project. Ariz.
- Genetic investigations of citrus and breeding to produce superior varieties. Calif.

Nuts

- Almond breeding. Calif.
- Pecan breeding project.--Hybridizing varieties to develop strains suitable for Arizona conditions. Ariz.
- A study of pecan seedlings of known parentage as a source of new and better varieties. N. C.
- Development of walnut seedlings.--To find companion or superior varieties to the Franquette walnut. Oreg.

Ornamentals

- Breeding of hardy roses. S. Dak.
- Breeding hardy door-yard roses. N. Y. Cornell.
- Snapdragon:--Breeding and selection. Ma.
- Carnation breeding. N. J.

Vegetables

Beans.

- Bean breeding. Porto Rico.
- Vegetable breeding and selection.--Beans. Minn.
- Improvement of beans grown for canning. Wis.
- Lima bean selection and breeding work. Ohio.

Crucifers.

- Late cabbage. Relation of seed selection to size and solidity of head, yield, and uniformity of type. (P) Pa.
- Early cabbage. The relation of seed selection to earliness yield, and uniformity of type. Pa.
- Vegetable breeding and selection. Cabbage. Minn.
- Breeding a better type of collard. Ga.
- Vegetable breeding and selection. Radish. Minn.

Cucurbits.

- Vegetable breeding and selection. Squash. Minn.
- Pure-line breeding. Squashes, influence of continued self-pollination on quality, quantity, production, vigor, and vitality. Vt.
- Vegetable breeding. Tomatoes, sweet corn, squash, and popcorn. N. Dak.
- Pumpkin breeding. Ohio.
- Cantaloups. Breeding and selection. Md.
- Plant breeding.--Plant selection work with cucumbers. Miss.
- Vegetable breeding and selection. Half-long English white spine type of cucumber. Minn.

Onions.

- Onion breeding work. Mass.
- Vegetable breeding and selection.--Onions. Minn.
- Onion studies.--Type studies. Utah.

Peas.

- Breeding of field and canning peas. Wis.
- Field and garden pea investigations.--Breeding and improvement. Idaho.
- Cause of "rogues" in peas. Wis.
- Vegetable breeding and selection. Peas. Minn.

Sweet Corn.

Breeding of sweet corn.	Porto Rico.
Sweet corn breeding investigations.	Ill.
Selection of sweet corn for increased sugar content.	Ind.
Sugar corn seed investigation and improvement. (P)	Md.
Vegetable breeding. Tomatoes, sweet corn, squash, and popcorn.	N. Dak.
Breeding sweet corn to reduce or eliminate suckers.	N. Y. Cornell.
Corn breeding work.--To develop a strain of corn suitable for table use that is not seriously subject to injury by the corn earworm (<u>Heliothis obsoleta</u>).	Virgin Islands.

Tomatoes.

Tomato breeding and selection.	(P)	Miss.
Breeding of horticultural plants.--Tomatoes.		Utah.
Improvement of varieties and strains of tomatoes.		Mich.
Tomatoes: Breeding and selection of varieties for canning.		Md.
Tomato variety, selection, and breeding tests.		Guam.
Greenhouse investigations. Breeding of greenhouse tomatoes.		
Culture of lettuce, radishes, tomatoes, and mushrooms.		N. Dak.
Seed selection of tomatoes.		Mont.
Vegetable breeding. Tomatoes, sweet corn, squash, and popcorn.		N. Dak.

Miscellaneous Vegetables.

The improvement of beets (<u>Beta vulgaris</u>) through selection of roots and seed selection.	Mass.
Beet selection and breeding.	Ohio.
The improvement of carrots (<u>Daucus carota</u>) through selection of roots and seed selection.	Mass.
Breeding of horticultural plants. Celery.	Utah.
Vegetable breeding and selection. Celery.	Minn.
Cultural investigations and breeding work with chicory.	Mich.

Miscellaneous Vegetables. (Cont.)

Isolation of strains of girasole, dahlia, and chicory with relatively high inulin and inulide content.	Minn.
Lettuce breeding in the Hawaiian islands.	Hawaii.
Vegetable breeding and selection. Head lettuce.	Minn.
The development of an improved variety of rhubarb.	Pa.
Vegetable breeding and selection. Rhubarb.	Minn.
The selection of a strain or strains of spinach that will meet the market and canners' demands. (P)	Md.
Breeding of greenhouse crops.	Ohio.

1/
Disease Resistance

Breeding pears for resistance to blight.	Ga.
The breeding of blight-resistant pears.	Md.
Blight resistance in pears.	Oreg.
Fire blight resistance. (P)	Tenn.
Blight-resistant pears and apples.	Ill.
Scab-resistant grapefruit.	Porto Rico.
Breeding disease-resistant tomatoes.	Mich.
Tomato breeding investigation.--Select wilt-resistant strains for greenhouse planting, early market, and canning.	Ill.
Experiments in the control of the western yellow tomato blight by breeding and selection.	Idaho.
Tomato seed selection for disease resistance.	Mo.
Developing wilt resistance in the Indiana strain of Balimore tomatoes.	Ind.
Tomato diseases. A study of varietal resistance and susceptibility of tomatoes to fusarium wilt and blossom end rot.	Miss.
Cabbage disease resistance.	Md.
Breeding of early yellow-resistant cabbage.	Ohio.

1/ See also Genetics--Inheritance of Disease Resistance, p. 252; and Plant Pathology--Disease Resistance, p. 358.

Horticulture--Breeding--Disease Resistance

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- Cabbage selection for disease resistance. Mo.
- Cabbage and cauliflower. Selection of disease-resistant strains best suited to Maryland. Md.
- Breeding beans resistant to disease. N. Y. Cornell.
- Breeding field and garden beans for disease resistance. N. Y. Cornell.
- Bean mosaic disease.--Field tests of varietal resistance looking toward certification. Miss.
- Anthrachnose resistance and freedom in bean seed. (P) Md.
- Seed selection of lettuce for slime resistance and variety improvement. Ariz.
- Development of tipburn-resistant head lettuce.--Selection and crossing studies. Colo.
- Spinach. The development of blight-resistant strain. Md.

POLLINATION

Fruits

General.

- Pollination. Mich.
- Pollination of fruits. N. Y. State.
- The influence of pollination on fruit yields. Md.

Apples.

- Apple pollination studies. N. H.
- Pollination studies with apples. S. C.
- Pollination of the apple. (A) W. Va.
- Pollination by honey bees.--To determine the effect of pollination of apple blossoms by honey bees upon setting of fruit. Alaska.
- The need for cross-pollination in various commercial varieties of apples. N. Y. Cornell.

Grapes.

Pollination studies with particular reference to the Almeria grape. Ariz.

The nature and causes of seedlessness in varieties of Vitis vinifera. Calif.

Types of flowers in grapes. N. Y. State.

Miscellaneous Fruits.

Pollination studies. A study of the requirements of various deciduous fruits including a study of the factors causing sterilization in such fruits as the almond and cherry. Calif.

Pollen abnormalities affecting the value of Duke cherries as pollinators. Ohio.

Pollination of pears (Comice and Anjou). Oreg.

Sterility of pears and other fruits, causes and remedies. (A) Vt.

Date palm studies. Effects of different pollens on date fruits. (P) Ariz.

A study of varieties and habits of pollination of the avocado, papaya, banana, and tomato. Hawaii.

Fruit Setting.

Factors that influence the abscission of flowers and young fruits. N. Y. Cornell.

A study to determine the importance of competition for food as a factor influencing the setting of fruit. (A) Ohio.

Sterility studies in fruit breeding. (1) An investigation of the stages at which flowers or pistils drop in the different fruits. (2) A study of the factors influencing the setting of fruits. (3) A study of the factors influencing the setting of fruit from the genetic standpoint. (A) Minn.

Vegetables

Greenhouse crops. (a) Contrast is being made between different varieties of tomatoes in the readiness with which pollination can be carried on in the greenhouse, some English varieties showing much easier pollination possibilities than American varieties. Oreg.

Comparison of methods of pollination of tomatoes for early set and best development of fruits on the early clusters. Ohio.

- Cantaloupes.--Pollination influence. Mc.
- A study of factors affecting fruiting habits of cucurbits. Calif.

Disease Resistance

(See Genetics--Inheritance of Disease Resistance, p.252, and Pathology--Disease Resistance, p. 358.)

VARIETY TESTS

Fruits

General.

- Variety tests of fruits. N. Y. State.
- Fruit variety tests. N. Y. State.
- Variety tests of tree fruits. Ill.
- Fruit variety studies. Del.
- Variety testing (fruits). Iowa.
- Fruit variety studies.--Adaptability and value of different varieties of fruits for canning, preserving, and other home uses. Minn.
- Study of varieties of tree fruits. Mass.
- Tests of tree fruits. Mont.
- Variety tests of apples and miscellaneous tree fruits. Ky.
- Fruit breeding and variety testing. Mich.
- Crop and variety tests of fruit trees. Oreg.
- Fruit variety tests. Ohio.
- Variety test of fruit trees. W. Va.
- Fruit and forest tree trials. Fla.
- Variety tests with small fruits, vegetables, apples, pears, plums, and cherries. Colo.
- Variety tests.--To study varieties of all field, garden, truck, and fruit crops. Miss.

General. (Cont.)

Orchard and small fruit trials.	Minn.
Studies of the utilization of canning varieties of fruit.	Calif.
Testing the following fruit trees for hardiness and productivity: Stone fruits.	Wyo.
Variety tests with fruits and adaptation to local conditions.	Ark.
Fruit investigations. Variety and hardiness tests of tree fruits.	Minn.
A study of the tree characters of fruit varieties. (A)	Mass.
Identification of fruits by means of leaf, tree, and vine characters.	Ohio.
Phenological fruit investigations.	N. Mex.
Minor work with fruit.--Varieties and breeding.	Oreg.
Variety tests of shade and fruit trees best suited to the high altitudes of southwestern Wyoming.	Wyo.
Miscellaneous experimental work. (b) Testing miscellaneous varieties of fruits sent in by the U. S. Bureau of Plant Industry and individuals.	Oreg.
Acclimatization tests of imported and other plants.	Ga.
Introduction of fruit, nut, economic and ornamental plants.	Virgin Islands.
Variety, propagation, and planting tests of pear, avocado, Japanese persimmon, fig, and other fruits.	Fla.
Observations and tests upon the bearing habits of fruit trees.	N. Y. State.

Apples.

Fruit variety test.--To determine the best varieties of apples.	Miss.
New apples for Wisconsin.	Wis.
Varieties of apples best adapted to Wisconsin conditions.	Wis.
Variety tests with apples.	S. C.
Varietal trial of apples.	Tenn.
Apple variety test.	Ala.

Apples. (Cont.)

- A study of the performance of different varieties of apples and market value of the product. (P) Mass.
- Varieties of summer apples for eastern North Carolina. N. C.
- Apple orchard experiment varieties. Pa.
- Testing the following fruit trees for hardiness and productivity: Apples. Wyo.
- Testing the best varieties of apples suited to irrigated farms in central Wyoming. Wyo.
- Apples. Variety and pruning experiments. Miss.
- Variety tests of horticultural crops. Apples. Miss.
- Variety tests of apples, crabs, plums, and cherries. Minn.
- Variety tests of apples, peaches, pears, plums, and cherries. Md.
- Variety tests of apples, plums, and small fruits, to find varieties especially adapted to Maine conditions. Me.
- Variety tests of apples and miscellaneous tree fruits. Ky.
- Horticultural investigations. (a) The introduction and testing of apples, pears, and plums, and some small fruits to determine their winter hardiness and adaptability to high altitudes. Idaho.
- Variety tests of apples, pears, grapes, raspberries, blackberries, currants, and gooseberries. Idaho.
- Variety tests with apples, pears, pecans, and peaches. Ala.
- Strains of Baldwin apples. N. Y. State.
- Fruit varieties.--Includes field observations and orchard tests of varieties of apples, peaches, and grapes, to secure information as to their behavior, commercial possibilities, and adaptation for commercial uses and for home garden purposes. Va.
- Variety test of fruits. Observations on adaptability of different varieties of apples, peaches, pears, plums, and small fruits to New Hampshire conditions. N. H.
- Fruit varietal tests and phenological data of apple, plum, peach, cherry, and small fruits. Ohio.

Apples. (Cont.)

Variety tests with fruits. Apples, plums, grapes, currants, gooseberries, raspberries, and strawberries. N. Dak.

Apple orcharding trials; comparative varietal studies; storage endurance. Vt.

Test of a number of new varieties of apples. N. Mex.

Pears.

Pear variety test. Miss.

Pears. Varieties and culture. Ind.

Testing new varieties of pears. Oreg.

Variety tests of apples, peaches, pears, plums, and cherries. Md.

Variety tests with apples, pears, pecans, and peaches. Ala.

Fruit variety test.--To determine the best variety of pears. Miss.

Horticultural investigations. (a) The introduction and testing of apples, pears, and plums, and some small fruits, to determine their winter hardiness and adaptability to high altitudes. Idaho.

Variety tests of apples, pears, grapes, raspberries, blackberries, currants, and gooseberries. Idaho.

Variety test of fruits. Observations on adaptability of different varieties of apples, peaches, pears, plums, and small fruits to New Hampshire conditions. N. H.

Testing the best varieties of pears suited to irrigated farms in central Wyoming. Wyo.

Variety, propagation, and planting tests of pear, avocado, Japanese persimmon, fig, and other fruits. Fla.

Variety tests. Tests with strawberries and potatoes and blight-resistant pears. Oreg.

Peaches.

Variety tests with peaches. S. C.

Fruit variety test.--To determine the best variety of peaches. Miss.

Peach varieties. Ind.

Horticultural--Variety Tests--Fruits

Peaches. (Cont.)

- An economic study of peach clingstone canning varieties. (P) Md.
- Variety tests of apples, peaches, pears, plums, and cherries. Ma.
- Variety tests with horticultural crops. Peaches. Miss.
- Variety test with apples, pears, pecans, and peaches. Ala.
- Fruit varieties.--Includes field observations and orchard tests of varieties of apples, peaches, and grapes; to secure information as to their behavior, commercial possibilities, and adaptation for commercial uses and for home garden purposes. Va.
- Variety test of fruits. Observations on adaptability of different varieties of apples, peaches, pears, plums, and small fruits to New Hampshire conditions. N. H.
- Fruit varietal tests and phenological data of apple, plum, peach, cherry, and small fruits. Ohio.
- Peaches. Variety and pruning experiments. Miss.
- Fertilizer and variety tests with peaches. Ga.

Plums.

- Variety tests of horticultural crops. Plums. Miss.
- Fruit variety test.--To determine the best variety of plums. Miss.
- Plums and prune variety test. Ind.
- Variety test of apples, crabs, plums, and cherries. Minn.
- Variety tests of apples, peaches, pears, plums, and cherries. Ma.
- Variety test of sweet and sour cherries and European, native, and Japanese plums. N. Mex.
- Variety test with fruits. Apples, plums, grapes, currants, gooseberries, raspberries, and strawberries. N. Dak.
- Fruit varietal test and phenological data of apple, plum, peach, cherry, and small fruits. Ohio.
- Varieties and seedlings of plums best adapted to Wisconsin conditions. Wis.
- Testing the best varieties of plums suited to irrigated farms in central Wyoming. Wyo.

Plums. (Cont.)

Variety tests of apples, plums, and small fruits to find varieties especially adapted to Maine conditions. Me.

Variety test of fruits.--Observations on adaptability of different varieties of apples, peaches, pears, plums, and small fruits to New Hampshire conditions. N. H.

Horticultural investigations. (a) The introduction and testing of apples, pears, and plums, and some small fruits to determine their winter hardiness and adaptability to high altitudes. Idaho.

Cherries.

Fruit variety test.--To determine the best variety of cherries. Miss.

Variety test of apples, peaches, pears, plums, and cherries. Md.

Testing the best varieties of cherries suited to irrigated farms in central Wyoming. Wyo.

Variety test of sweet and sour cherries and European, native, and Japanese plums. N. Mex.

Variety tests of apples, crabs, plums, and cherries. Minn.

Fruit varietal tests and phenological data of apple, plum, peach, cherry, and small fruits. Ohio.

Subtropical Fruits.

Plant introductions, distribution, and cultural requirements of tropical fruits.--To enable the station to render available to the fruit growers of the Hawaiian Islands all the best adapted varieties of fruits from all part of the world together with the special requirements as regards culture, fertilizers, pruning, etc. Hawaii.

A study of the varieties of citrus fruits and their relatives. Calif.

Observation and testing of various citrus hybrids. Fla.

Testing of introduced and new varieties and hybrids of citrus and near-citrus. Fla.

Fruit variety test.--To determine the best variety of tangerine oranges. Miss.

Fruit variety test.--To determine the best variety of round oranges. Miss.

Horticulture--Variety Tests--Fruits.

Subtropical Fruits. (Cont.)

Fruit variety test.--To determine the best variety of Satsuma oranges.	Miss.
Fruit variety test.--To determine the best variety of lemons.	Miss.
Fruit variety test.--To determine the best variety of grapefruit.	Miss.
Fruit variety test.--To determine the best variety of kumquate.	Miss.
Mango and avocado improvement.	Virgin Islands.
Propagation of the imported mango.	Porto Rico.
A study of the varieties and habits of pollination of the avocado, papaya, banana, and tomato.	Hawaii.
Variety, propagation, and planting tests of pear, avocado, Japanese persimmon, fig, and other fruits.	Fla.
A horticultural and botanical study of fig varieties in California.	Calif.
Fig variety test.	Miss.
Fruit variety test.--To determine the best variety of figs.	Miss.
Fruit variety test.--To determine the best variety of pomegranates.	Miss.
Fruit variety test.--To determine the best variety of persimmons.	Miss.
Fruit variety test.--To determine the best variety of jujubes.	Miss.

Grapes.

Variety tests of grapes.	Fla.
Grape variety test.	Ala.
Variety tests with grapes.	S. C.
Varietal trial of grapes.	Tenn.
Miscellaneous experimental work. (a) Grape variety studies as to hardiness and production.	Oreg.
Variety tests of grapes and strawberries.	Md.
Fruit variety test.--To determine the best variety of bunch grapes.	Miss.
Variety tests of horticultural crops. Bunch grapes.	Miss.

Grapes. (Cont.)

Variety tests of horticultural crops, muscadine grapes.	Miss.
Fruit variety test.--To determine the best variety of muscadine grapes.	Miss.
Rotundifolia grapes. Study of quality characters. (A)	N. C.
Grapes. Variety, pruning, fertilizer, and types of trellis experiment.	Miss.
Grape project. Variety test.	Colo.
Grape investigations. American and hybrid varieties.	Ky.
Variety tests of apples, pears, grapes, raspberries, blackberries, currants, and gooseberries.	Idaho.
Variety tests with fruits. Apples, plums, grapes, currants, gooseberries, raspberries, and strawberries.	N. Dak.
Fruit varieties.--Includes field observations and orchard tests of varieties of apples, peaches and grapes, to secure information as to their behavior, commercial possibilities, and adaptation for commercial uses and for home garden purposes.	Va.
Bush and vine fruits. Variety tests of raspberries, blackberries, dewberries, gooseberries, currants, high bush cranberries, blueberries, strawberries, and grapes.	Minn.

Small Fruits.

Variety tests of berries.--Rubus spp.	Fla.
Testing the best varieties of bush fruits suited to irrigated farms in central Wyoming.	Wyo.
Small fruit and nut varietal tests.	Ill.
Variety tests of bush fruits.	Md.
Small fruit variety testing.	Mich.
Bush fruits.	Ind.
Orchard and small fruit trials.	Minn.
Variety tests with small fruits, vegetables, apples, pears, plums, and cherries.	Colo.
Variety tests of apples, pears, grapes, raspberries, blackberries, currants, and gooseberries.	Idaho.

Small Fruits. (Cont.)

- Fruit varietal tests and phenological data of apple, plum, peach, cherry, and small fruits. Ohio.
- Variety tests with fruits. Apples, plums, grapes, currants, gooseberries, raspberries, and strawberries. N. Dak.
- Bush and vine fruits. Variety test of raspberries, blackberries, dewberries, gooseberries, currants, high bush cranberries, blueberries, strawberries, and grapes. Minn.
- Experiments in general horticulture.--Variety test of small fruits and perennial vegetables. Minn.
- Bush fruits. Okla.
- Fruit investigations. Variety and hardiness tests of small fruits. Minn.
- Testing the following fruit trees for hardiness and productivity. Bush fruits. Wyo.
- Bush fruits. Ind.
- Variety tests of apples, plums, and small fruits to find varieties especially adapted to Maine conditions. Me.
- Horticultural investigations. (a) The introduction and testing of apples, pears, and plums, and some small fruits to determine their winter hardiness and adaptability to high altitudes. Idaho.
- Variety test of fruits. Observations on adaptability of different varieties of apples, peaches, pears, plums, and small fruits to New Hampshire conditions. N. H.
- Small fruit experiment. N. Mex.
- Bush fruits.--Tests of varieties of raspberries. Tenn.
- Raspberries. Variety test and studies on propagation from cuttings. Miss.
- Bush fruit experiments. Black raspberries.--To determine (1) variety adaptability, (2) value of nitrogen and phosphorus fertilizers. Ky.
- Bush fruit experiments. Red raspberries.--To determine (1) variety adaptability, (2) value of nitrogen and phosphorus fertilizers. Ky.
- Fruit variety test.--To determine the best variety of raspberries. Miss.

Small Fruits. (Cont.)

Bush fruits. Tests of varieties of blackberries.	Tenn.
Bush fruit experiments. Blackberries.--To determine (1) variety adaptability, (2) value of nitrogen and phosphorus fertilizers.	Ky.
Blackberry culture.--To determine strains of blackberries suitable to Alaskan conditions.	Alaska.
Fruit variety test.--To determine the best variety of dewberries.	Miss.
Fruit variety test.--To determine the best variety of blueberries.	Miss.
Adaptation study of blueberries.	S. C.
Variety tests of blueberries for the U. S. D. A.	R. I.
Blueberry investigations. Varieties.	Mass.
Test to select a desirable strain of southern blueberries.	Ala.
Southern and New Jersey blueberry plants comparison on low and elevated soils.	Ala.
Bush fruits. Tests of varieties of gooseberries.	Tenn.
Bush fruits. Tests of varieties of currants.	Tenn.

Strawberries.

Strawberry variety test.	Ind.
Variety tests of strawberries.	La.
Strawberries. Variety test including studies on resistance to drought.	Miss.
Varietal trial of strawberries.	Tenn.
Strawberry variety tests.	Wis.
A test of strawberry varieties.	S. C.
Variety tests of grapes and strawberries.	Md.
Variety tests with fruits. Apples, plums, grapes, currants, gooseberries, raspberries, and strawberries.	N. Dak.
Bush and vine fruits. Variety test of raspberries, blackberries, dewberries, gooseberries, currants, high bush cranberries, blueberries, strawberries, and grapes.	Minn.

Strawberries. (Cont.)

- Small fruit experiment. N. Mex.
- Varietal trials and cultural experiments with strawberries. Ky.
- Variety tests.--Tests with strawberries and potatoes, and blight-resistant pears. Oreg.

Miscellaneous Fruits.

- Fruit variety test.--To determine the best variety of nectarines. Miss.
- Fruit variety test.--To determine the best variety of apricots. Miss.
- Comparison of commercial coffees for production. Porto Rico.
- A study of variation in yield of cacao. Porto Rico.

Nuts

Pecans.

- Pecan variety test, Albertville, Alabama. Ala.
- Pecan variety test. N. C.
- Pecans. Variety test and comparison of nuts grown at that station and in other sections of Mississippi. Miss.
- Variety tests of horticultural crops. Pecans. Miss.
- Fruit variety test.--To determine the best variety of pecans. Miss.
- Pecan investigations. Okla.
- Pecan variety cracking tests. N. C.
- Compilation of available information upon the varieties of pecans best suited to different localities and soil types in Florida, and collecting information as to the best proven methods of fertilizing, propagating, and growing pecans. Fla.
- Pecan, English walnut, and almond experiments. (1) To ascertain whether New Mexico climatic and soil conditions are suitable for the growing of these nut trees. (2) To study the different methods of preventing winter injury to the trees, and (3) to begin an investigation on originating, if possible, a late-blooming almond. N. Mex.
- Variety and stock tests of pecan and walnut trees at the Gainesville Station. Fla.
- Variety tests with apples, pears, pecans, and peaches. Ala.

Walnuts.

- Selection of walnut varieties. Calif.
- Fruit variety test.--To determine the best variety of walnuts. Miss.
- Pecan, English walnut, and almond experiments. (1) To ascertain whether New Mexico climatic and soil conditions are suitable for the growing of these nut trees. (2) To study the different methods of preventing winter injury to the trees, and (3) to begin investigation on originating, if possible, a late-blooming almond. N. Mex.
- Variety and stock tests of pecan and walnut trees at the Gainesville Station. Fla.

Miscellaneous Nuts.

- Pecan, English walnut, and almond experiments. (1) To ascertain whether New Mexico climatic and soil conditions are suitable for the growing of these nut trees. (2) To study the different methods of preventing winter injury to the trees, and (3) to begin an investigation on originating, if possible, a late-blooming almond. N. Mex.
- Fruit variety test.--To determine the best variety of almonds. Miss.
- Fruit variety test.--To determine the best variety of chinquapins. Miss.
- Variety test of improved European filberts. N. Y. State.
- Small fruit and nut varietal tests. Ill.
- Fruit variety test.--To determine the best variety of tung oils. Miss.

Ornamentals

General.

- Flowering plant investigations. Minn.
- Horticultural survey.--Ornamentals. Utah.
- Study of ornamental varieties and their uses. Minn.

Trees and Shrubs.

- Tests of ornamental trees and shrubs. Mont.
- Tests of trees and ornamental shrubs for the high plains of southwestern Kansas. Kans.
- Crop and variety tests of ornamental trees. Oreg.

Trees and Shrubs. (Cont.)

Variety trials of shade trees.	N. Dak.
Introduction of fruit, nut, economic, and ornamental plants.	Virgin Islands.
Variety tests of shade and fruit trees best suited to the high altitudes of southwestern Wyoming.	Wyo.
New plant materials for landscape use in Iowa.	Iowa.
The adaptability of various ornamental trees to higher elevations of eastern Idaho for the improvement of the homestead.	Idaho.
Ornamentals with edible fruits.	Ill.
Testing of native and introduced shrubs and ornamentals and methods for their propagation.	Fla.
The testing of trees and ornamentals for western Minnesota conditions.	Minn.
Tree, shrub, and flower investigations. Growth and hardiness tests of ornamental and windbreak trees.	Minn.
Tree, shrub, and flower investigations. Variety and hardiness tests of ornamental shrubs and vines.	Minn.
Tree, shrub, and flower investigations. Variety and hardiness tests of perennial and other flowers.	Minn.
Variety trials of shrubs. Roses, a special line.	N. Dak.

Flowers.

Variety studies of irises.	N. Y. Cornell.
Perennial flower variety trials. Iris, lilies.	N. Dak.
Variety studies of phlox.	N. Y. Cornell.
Study of the nomenclature of Japanese and single peonies.	Ill.
Variety studies with peonies.	N. Y. Cornell.
Hardy and half-hardy herbaceous perennials.	Ky.
Studies of primulas.	N. Y. Cornell.
Varieties and cultrue of gladiolus.	N. Y. Cornell.
Dahlia trial garden.	Md.

Vegetables

General.

Introduction of horticultural plants.	Tex.
A study of miscellaneous vegetables.	Tex.
Variety testing of vegetables.	Mich.
Variety tests of vegetables.	Okla.
Variety tests of vegetables to find varieties especially adapted to Maine conditions.	Me.
Variety trials and cultural tests for vegetable production.	Nebr.
Variety and cultural tests with vegetables.	Mont.
Variety tests with small fruits, vegetables, apples, pears, plums, and cherries.	Colo.
Experiments in general horticulture.--Variety test of small fruits and perennial vegetables.	Minn.
Vegetable breeding and selection.--Variety tests of new introductions.	Minn.
Forage, truck, and field crop trials.	Fla.
A study of Maryland vegetables as to varieties, cultural methods, and marketing.	Md.
Study of oriental vegetables in Hawaii.--To determine the relative merits of the numerous vegetables of oriental origin at present grown in the Hawaiian Islands.	Hawaii.
Phenological studies on truck crops in Florida.	Fla.
Variety tests with vegetables and adaptation to local conditions.	Ark.
Testing new varieties and strains of vegetables.	Md.
Variety tests.--To study varieties of all field, garden, truck, and fruit crops.	Miss.
Morphological and botanical study of varieties of vegetables. (P)	N. Y. State.
Variety tests with different vegetables and tomatoes.	Miss.
Garden crop investigations. Variety tests and source-of-seed tests.	Kans.
Garden crops. Variety tests of garden crops.	Minn.

Celery.

Classification and description of varieties of celery. N. Y. Cornell.

A cultural and variety test of celery. Tex.

Crucifers.

Varietal trial of cabbage. Tenn.

Cabbage. Test of wilt-resistant varieties. Tenn.

Late cabbage. The relative value of varieties for different purposes. Pa.

Vegetable variety tests.--To determine the best variety of cabbage. Miss.

Variety tests of vegetables. Asparagus, beans, cabbage, cauliflower, head lettuce, peppers, sweet corn, rhubarb, and tomatoes. N. Dak.

Variety tests and fertilizer experiments with tomatoes, lettuce, spinach, and cabbage. Idaho.

Development of improved strains of vegetables.--Beets, red cabbages, and pickle cucumbers. Ill.

Root crop investigations. Variety tests of rutabagas. Minn.

Truck and root crops. (2) Varietal trials with stock beets, turnips, rutabagas, and carrots. Oreg.

Cucurbits.

Cucumber culture.--To determine whether cucumbers can be grown successfully in the greenhouse under conditions as found in southeastern Alaska. Alaska.

Investigations to determine the fertilizer requirements, varieties cultural methods and seed "place effect" of the watermelon and canteloupe. Mo.

Vegetable variety tests.--To determine the best variety of watermelons. Miss.

Studies of cucurbits for canning. Iowa.

Development of improved strains of vegetables.--Beets, red cabbage, and pickle cucumbers. Ill.

Lettuce.

Truck and root crops. (1) Head lettuce varietal trials. Oreg.

Varietal study and cultural tests in producing head lettuce. Idaho.

Lettuce. (Cont.)

Variety tests and fertilizer experiments with tomatoes, lettuce, spinach, and cabbage.

Idaho.

Seed selection of lettuce for slime resistance and variety improvement.

Ariz.

Variety tests of vegetables. Asparagus, beans, cabbage, cauliflower, head lettuce, peppers, sweet corn, rhubarb, and tomatoes.

N. Dak.

Onions.

Vegetable variety tests.--To determine the best variety of onions.

Miss.

Onion studies.--Comparison of various strains of sweet Spanish.

Utah.

Testing onion sets and seed in the greenhouse.

Mass.

Cultural experiments with Bermuda onions, including methods of plant (set) growing, variety, and fertilizer tests.

Mo.

Peas.

Field and garden pea investigations. Classification studies.

Idaho.

Miscellaneous truck crops. Varieties of garden peas.

Utah.

Pea selections for Colorado.--To obtain a desirable type of pod peas that can be successfully grown in the high altitudes.

Colo.

Canning peas.

Alaska.

Field and garden pea investigations. (a) To determine the varieties best adapted to dry lands.

Idaho.

Garden and field peas.--To determine time of spring and fall planting and best varieties to grow.

N. Mex.

Spinach.

Vegetable variety tests.--To determine the best variety of spinach.

Miss.

Variety test of fall spinach.

N. Y. State.

Spinach.--Suitable for market and canning.

Md.

Studies of the yielding capacity and the canning qualities of different varieties of tomatoes, spinach, beans, and beets.

Md.

Variety tests and fertilizer experiments with tomatoes, lettuce, spinach, and cabbage.

Idaho.

Tomatoes.

Varietal trials of tomatoes.	Tenn.
Tomato variety tests.	Tex.
Tomato variety tests.	N. H.
Tomato variety and strain tests.	Ind.
Strain and variety tests of tomatoes.	S. C.
Tomato investigations. (1) A variety study of tomatoes for canning purposes.	W. Va.
Tomato variety test.	Miss.
Variety tests of vegetables. Asparagus, beans, cabbage, cauliflower, head lettuce, peppers, sweet corn, rhubarb, and tomatoes.	N. Dak.
Tomatoes.--The relative merits of varieties for different purposes.	Pa.
Varietal studies of market tomatoes.	Utah.
Variety tests and fertilizer experiments with tomatoes, lettuce, spinach, and cabbage.	Idaho.
Variety tests with different vegetables and tomatoes.	Miss.
Studies of the yielding capacity and the canning qualities of different varieties of tomatoes, spinach, beans, and beets.	Md.
Strain tests of vegetables.--Sweet corn, tomatoes, string beans, and peppers.	Ill.
Tomato variety, selection, and breeding tests.	Guam.
Varietal and date-of-planting experiments with tomatoes.	Tenn.
A study of varieties and habits of pollination of the avocado, papaya, banana, and tomato.	Hawaii.

Miscellaneous Vegetables.

Asparagus culture.--To determine if asparagus can be grown successfully in Alaska.	Alaska.
Variety tests of vegetables. Asparagus, beans, cabbage, cauliflower, head lettuce, peppers, sweet corn, rhubarb, and tomatoes.	N. Dak.

Miscellaneous Vegetables. (Cont.)

Varietal trials of garden beans.	Tenn.
Cannery vegetable strain tests.--Beet strains are being tested for color, uniformity, freedom from light rings, and of good shape for canning. Strains of Chantenay and Nantes carrots are being tested for uniformity and general characteristics suitable for canning.	Oreg.
Studies of the yielding capacity and the canning qualities of different varieties of tomatoes, spinach, beans, and beets.	Md.
Varietal tests with mangels, rutabagas, sugar beets, turnips, and garden beets to determine the largest yielding varieties.	Mich.
Strain tests of vegetables.--Sweet corn, tomatoes, string beans, and peppers.	Ill.
Truck and root crops. (2) Varietal trials with stock beets, turnips, rutabagas, and carrots.	Oreg.
Development of improved strains of vegetables.--Beets, red cabbage, and pickle cucumbers.	Ill.
Yam variety and cultural test.	Guam.

Disease Resistant Varieties
(See Breeding--Disease Resistance, p. 268.)

CULTURE

Fruits

General.

Orchard culture.	Ohio.
Orchard culture test.	Ohio.
Orchard culture.	Nebr.
Cooperative orchard management.	Minn.
Cultural experiments with orchard fruits.	Mich.
Orchard management investigations.	Kans.
Orchard management of experiment station orchard..	Wash.
Local orchard management experiments.	Va.

General. (Cont.)

Bush and tree fruit investigations.		Minn.
Orchard cover crops.--Varietal tests of legumes for southern Oregon conditions.		Oreg.
Orchard cover crops.	(P)	Wash.
Cover crops for orchards.		N. Y. State.
Cover crops in orchards.		Mich.
Shade crop studies.--The influence on tree growth of different methods of handling alfalfa in orchards.		Oreg.
A study of the mulch system of orcharding in Ohio.		Ohio.
Comparison of clover sod and grass in sod mulch orchard.		Mass.
Comparison of cultivation and sod mulch in a bearing orchard.		Mass.
Effects of grass culture of fruit trees.		N. Y. Cornell.
Modifications of factors in fruit culture because of coastal conditions.	(P)	R. I.
A study of air drainage and spring temperature variations as affecting frost injury to fruit.	(A)	N. Mex.
Relation of weather to fruit production in Ohio and means of reducing losses due to low temperatures.		Ohio.
Orchard heating investigations.		Iowa.
Smudging experiments.		N. Mex.
Winter injury.--To determine the best procedure in handling trees injured by the severe winter of 1919-20.		Oreg.
Moisture requirements of deciduous orchards.		Calif.
Orchard irrigation studies at Davis.		Calif.

Apples.

Apple orchard experiment with cover crops.		Pa.
Test of cover crops for apple orchards.		Mass.
Orchard cover crops.		Ind.
Comparison of cultivation and heavy mulching for apples and pears.		Mass.

Apples. (Cont.)

- Sod v. tillage for apple orchards. Md.
- Orchard soil management investigations. (A) Ind.
- Cultural treatments and fertilizers for orchards. (1) Apple orchards. W. Va.
- A study of the influence of climate, topography, soil, varieties, and cultural practices on the yield of apples. Va.
- Cultural experiments with fruits. Cultivation methods with apples. N. Dak.
- Water requirements of apple trees under humid conditions. N. Y. Cornell.
- Apple orchard experiment.--Cultural methods. Pa.
- Cultivation studies of young apple trees. N. Y. Cornell.
- Study of relation of apple trees and soil at Olney. Ill.
- Apple planting. Ky.
- Apple experiments.--To determine (1) relative value of cultivation and legume and nonlegume sod systems of orchard culture, (2) merits of different methods of pruning. Ky.
- The relation of soil type to the production of apples. N. J.
- Fertilizers and cultural tests with apples. Ala.
- The influence of cultural methods and conditions of growth on the keeping qualities of apples. Pa.
- A study of the factors which influence the production, storing, and shipping of apples. Ark.

Pears.

- Pears. Varieties and culture. Ind.
- Comparison of cultivation and heavy mulching for apples and pears. Mass.
- Pear blight control with special emphasis on horticultural methods. Calif.

Peaches.

- Peach production. Tex.
- The relation of soil type to the production of peaches. N. J.
- Peach experiments.--To determine (1) length of cultivation and time of seeding cover crops, (2) cultivated intercrop v. clean cultivation, (3) Japanese clover v. natural weed grasses supplemented with manure, on steep sites, (4) quantities of nitrates producing desirable responses, (5) necessary hoeing for uncultivated trees, (6) use of nitrates to counteract noncultivations. Ky.
- An economic study of different peach-planting methods. (P) Md.
- The rejuvenation of peach orchards. Md.
- Irrigation studies with the Delhi Muir peach orchard. Calif.

Plums.

- Improvement of prune orchard conditions. Oreg.

Cherries.

- Cherry culture.--To determine if cherries can be grown successfully. Alaska.
- Investigation of the factors limiting the production of sweet cherries in Missouri. Mo.

Subtropical Fruits.

- Satsuma orange culture. La.
- Cover crop and green manure studies in citrus groves. Fla.
- Pomelo (grapefruit) production. Tex.
- A study of the effects of irrigation on the growth and production of grapefruit trees. (P) Ariz.
- The effect of fertilization and other cultural practices upon the keeping qualities of citrus fruit. Calif.
- Fertilizer and cultural trials in a bearing citrus grove. Calif.
- A study of the culture and management of date orchards with special reference to the yield and quality of fruit. Ariz.
- Figs.--(Fertilizers, spraying, and varieties.) Tex.
- The limiting factors in soils affecting the growth and production of pineapple. Porto Rico.
- Increasing the size of olives. Calif.

Grapes.

Cultural investigations with the grape.	N. J.
Grape investigations.--Factors affecting the production of grapes on the Yuma and Salt River Valley experiment farms.	Ariz.
The effect of (a) density, and (b) arrangement of planting upon the vigor and bearing of the vine.	Calif.
Grape experiments.	W. Va.
Muscadine grape culture.	La.
Growing European grapes.	Ill.
Duty of water on grapes.	N. Mex.
Duty of water studies on cabbage and grapes.	N. Mex.
Effect of soil treatment on brambles, grapes, and blueberries. (P)	R. I.
Effect of the lack of soil moisture on the winter killing of grape vines. (P)	Ariz.
Vineyard management. Survey of the vineyard industry in the vicinity of Council Bluffs, Iowa.	Iowa.
A study of factors involved in the production, storing, and shipping of grapes.	Ark.

Small Fruits.

Small fruit investigations.	N. J.
Experiments with small fruit.	Mont.
Influence of irrigation on small fruits.	Oreg.
Irrigation of small fruits and vegetables.	Mich.
Bush fruit experiments.	W. Va.
Push fruits.--The response of 3 or 4 important varieties of black raspberries to pruning, fertilizers, and anthracnose control.	Ind.
Raspberries. Cultural and spraying experiments at South Haven Station.	Mich.
Blackberry culture.	La.
Effect of soil treatment on brambles, grapes, and blueberries. (P)	R. I.

Small Fruits. (Cont.)

Cranberry investigations. (3) Cranberry cultural practices.	Wash.
Study of the cultivation of the high bush cranberry (<u>Viburnum opulus</u>).	Mass.
Investigations of cranberry and blueberry problems.	N. J.
Blueberry culture.	Minn.
Artificial culture of blueberries on soils not naturally acid.	N. Y. Cornell.
Blueberry investigations. Management and improvement.	Mass.
Strawberry culture experiments.	Ky.
Strawberry experiments.	W. Va.
Strawberry production.	Tex.
Variety trials and cultural experiments with strawberries.	Ky.
Strawberry cultural and mulching experiments.	Mich.
Rotations for strawberries.	La.
Overhead irrigation of strawberries.	Ill.

Nuts

Nut culture in Minnesota.	Minn.
Irrigation of bearing walnut groves.	Calif.
Studies in nut culture and propagation.	N. Y. Cornell.
Pecans.	Tex.
Pecan culture.	La.
Orchard management in relation to annual and alternate. bearing of pecans.	N. C.
Cooperative cover crops tests in pecan orchards.	Fla.
Pecan studies.--Factors affecting pecan growing under irrigation.	Ariz.
Propagation, planting, and fertilizing tests with tung oil trees.	Fla.

Ornamentals

Trees and Shrubs.

Horticultural investigations. (b) The planting of ornamental trees and shrubs for the improvement of the homestead. Idaho.

The relation of soil type to the production of ornamental trees. N. J.

Environmental factors in hydrangea culture. N. J.

Rose culture. N. J.

Flowers.

Culture of herbaceous perennial plants. N. J.

Peony culture. Ill.

Carnation culture. N. J.

Carnations. Effects of soil types on yields of varieties. Md.

Certain factors influencing winter gladiolus culture. R. I.

A study of bulb culture in Idaho. Idaho.

Bulb growing. Alaska.

Forcing bulbs. Ill.

Gladiolus.--Effect of time of ripening of bulb on forcing qualities. Md.

Floriculture plot technic. Ohio.

Vegetables

General.

A study of the effect of climate and soil on the composition of vegetables. Hawaii.

Garden crop investigations. Minn.

Vegetable growing experiments. Virgin Islands.

Vegetable planting dates. Alaska.

Studies with miscellaneous vegetables in north Jersey. N. J.

General. (Cont.)

- Winter vegetable growing on the Yuma Mesa.--Possibility of winter and early spring growing. Ariz.
- Variety trials and cultural tests for vegetable production. Nebr.
- Variety and cultural tests with vegetables. Mont.
- A study of Maryland vegetables as to varieties, cultural methods, and marketing. Md.
- A study of oriental vegetables in Hawaii. Hawaii.
- Cover crop experiments on Long Island. N. Y. Cornell.
- The principles of intertillage. A study of the effects of cultivation on soil moisture, soil temperature, nitrification, and on the yields of vegetable crops. N. Y. Cornell.
- Rotation and fertilizer experiments with vegetable and canning crops. N. Y. State.
- Soil management, fertilizer, and rotation experiments on Long Island. N. Y. Cornell.
- Disinfecting methods and treatment for vegetable seeds. Ohio.
- Test of hotbed sash material.--Glass, Cel-O-Glass, glass cloth, screen glass, glass fabric, and Flex-O-Glass. Ohio.
- Summer frost prevention on peat and muck lands. Minn.

Asparagus.

- Asparagus investigations. Calif.
- Asparagus cultural methods. Ill.
- Spacing and time of cutting tests with asparagus. S. C.

Crucifers.

- Effect of soil reaction on growth of cauliflower, potatoes, and other vegetable crops. N. Y. Cornell.
- A study of the root development of cabbage seedlings as influenced by culture and environment previous to the final transplanting and the resulting influence on the crop. Pa.
- Cabbage and cauliflower. Study of hardiness of Early Jersey Wakefield and Charleston Wakefield cabbage and possible bearing it may have on formation of seed shoots. Md.

Crucifers. (Cont.)

Cabbage and cauliflower. Conditions affecting heading of late crop of cauliflower in the southern sections of the State. Md.

Duty of water studies on cabbage and grapes. N. Mex.

Cabbage fertilizer and irrigation experiments. N. Mex.

Cucurbits.

Miscellaneous truck crops. Cucumbers. Utah.

Methods of growing tomato and cucumber plants in relation to earliness of ripening. Ohio.

Distance of planting in tomatoes and cucumbers in relation to size, color, total yield, etc. Ohio

Investigation to determine the fertilizer requirements, varieties, cultural methods, and seed "place effect" of the watermelon and cantaloupe. Mo.

Cantaloupe culture. Tex.

A study of factors involved in the production and shipping of cantaloupes. Ark.

Lettuce.

Varietal study and cultural tests in producing head lettuce. Idaho.

Onions.

The effect of certain cultural methods upon the yield of marketable onions. Tex.

Onion tests.--To study the effect on time of ripening of transplanted onions in the field in the spring; of onions planted in the field in the spring, and of onions planted in the field in the fall; both late ripening and early ripening varieties to be used. (2) To study the effect of early fall planting on the percentage of plants producing seed pods the following year. (3) To make a comparative study of the commercial value of the Babosa, White Tripoli, White Sweet Spanish, Crystal Wax, White Globe, and Grano. N. Mex.

Growing Sweet Spanish onions.--To study the culture and storage under Southwestern conditions of the Sweet Spanish onion. Ariz.

Onion culture on peat and mineral lands. Minn.

Cultural experiments with Bermuda onions, including methods of plant (set) growing, variety, and fertilizer tests. Mo.

Peas.

Garden peas. Rate of seeding.	Md.
Garden peas. Best crop to precede.	Md.
Field and garden pea investigations. Cultural experiments.	Idaho.
Growing canning crop peas.	N. Y. State.
Irrigation of canning peas.	Utah.
Garden peas. Inoculation experiments with peas.	Md.
Factors influencing the yield and quality of canning peas. (P)	Md.
Garden and field peas.	N. Mex.
Garden peas. Rotation of crops with and without legumes as affecting diseases.	Md.

Sweet Corn.

The effects of removal of suckers on earliness and yield of ears of sweet corn.	N. Y. Cornell.
Growing sweet corn for canning.	N. Y. State.
Sweet corn investigations.	Iowa.
Investigation of the susceptibility to corn borer attack of varieties of sweet corn as influenced by time of planting.	Mass.

Tomatoes.

Producing canning crop tomatoes.	N. Y. State.
Tomato culture.	Alaska.
Tomatoes. Cultural methods.	Md.
Canning crops.--Tomatoes.	Utah.
Factors affecting earliness of tomatoes.	N. H.
The effect of certain cultural methods upon the production of early tomatoes.	Tex.
The canning industry in Maryland. The effect of soil type and fertilizer ratios on the quality of the tomato. (P)	Md.
Tomato culture with stable manure substitutes in field and greenhouse.	R. I.

Tomatoes. (Cont.)

- Tomato experiments.--To try the different methods of growing tomatoes; to test different varieties for shipping in the white ripe condition; to try different methods of preventing the western yellow blight. N. Mex.
- Effect of companion crops, as lettuce, upon the early set, growth, and earliness of ripening of tomatoes. Ohio.
- A study of the factors involved in the production, marketing, and canning of tomatoes. Ark.
- Varietal and date-of-planting experiments with tomatoes. Tenn.
- Methods of growing tomato and cucumber plants in relation to earliness of ripening. Ohio.
- Distance of planting in tomatoes and cucumbers in relation to size, color, total yield, etc. Ohio.

Miscellaneous Vegetables.

- A cultural and variety test of celery. Tex.
- Investigations with the Hopi Lima bean. Calif.
- Investigations with garden peas, beans, Irish potatoes, and sugar beets at high altitudes. (P) N. Mex.
- Pepper investigations. Tex.
- Fertilizer and cultural tests with sweet potatoes and peppers. Ga.
- Beet investigations. Garden beet investigations. Calif.
- Miscellaneous truck crops. Red beets. Utah.
- Rhubarb forcing. Alaska.
- Ginger culture in Hawaii. Hawaii.
- The vitamin content of vegetables as affected by cultural methods and degree of maturity. (P) Iowa.
- Cultural investigations and breeding work with chicory. Mich.
- Mushroom growing. Colo.

Greenhouse Crops.

- Greenhouse investigations. Breeding of greenhouse tomatoes; culture of lettuce, radishes, tomatoes, and mushrooms. N. Dak.

Greenhouse Crops. (Cont.)

Greenhouse crops. (b) Experiments with different greenhouse crops to find the best cropping combinations from a greenhouse management standpoint.

Oreg.

Winter production of greenhouse crops.

(P)

R. I.

Irrigation of Vegetables.

Irrigation of vegetables.

Oreg.

Effect of different water tables on the development of vegetable crop plants on peat lands.

Minn.

Irrigation of truck crops.

Iowa.

The effect of overhead irrigation of vegetables.

R. I.

Irrigation of small fruits and vegetables.

Mich.

Irrigation of vegetables.

Ill.

Lettuce irrigation project.--Different irrigation practices on growth and production of winter head lettuce.

Ariz.

Vegetable Rotations.

Various vegetable and truck crop rotations.

R. I.

Vegetable growers' rotations.--Crops variable: Ten cords manure v. fertilizer alone.

R. I.

Rotations: Potatoes, rye as green manure followed by squashes, onions, wheat and rowen, grass, and cabbages.

R. I.

Rutabagas in a nonmanure rotation.

R. I.

Rutabagas in a rotation with manure v. fertilizers.

R. I.

Effects of rutabagas on following crops.

R. I.

Vegetable growers' rotations.--Cabbage - beets; tomatoes - spinach; lettuce - celery; also with beets replaced by buckwheat and rye, Japanese millet, and ryegrass for green manures; and with spinach and lettuce similarly replaced by rape (autumn), oats (spring), timothy and rye; with different amounts of stable manure, and fertilizer having more or less nitrogen, phosphorus, and potassium, and with peat to supply organic matter equal to that in manure.

R. I.

Vegetable Rotations. (Cont.)

Vegetable growers' rotations: Beet - cauliflower; spinach - carrots, eggplant, also with cauliflower replaced by rye-grass and clover for green manure with 32, 16, and 8 tons manure, and fertilizer in each case; more and less nitrogen and phosphorus; peat; subsoiling and gravelling; horse manure with straw v. sawdust or shavings bedding. R. I.

Vegetable growers' rotations: Beets, followed by clover, by cowhorn turnips, and by soy beans (all three plowed under in fall) and by clover, rye, and by timothy (plowed under in spring), then lettuce followed by the same green manure scheme: Fertilizer only. R. I.

Influence of peas on late lettuce. R. I.

Cabbages. Effect on following crops. Fertilizer needs. R. I.

Influence of squash on following crops. R. I.

Carrots. Effect on following crops. Fertilizer needs. R. I.

1/
SPRAYING

Fruits

General.

Spraying investigations upon tree fruits. N. J.

Adaptation of the recommended spray schedule for the control of orchard insects to eastern Massachusetts conditions. Mass.

An investigation of combination sprays for deciduous fruit trees. (P) Mo.

The chemistry of insecticides and fungicides. The effect of oil sprays on fruit trees. N. Y. State.

The testing of new spray materials. Idaho.

Orchard management investigations.--Studies of tree growth and fruit bud formation as affected by commercial fertilizers, green manures, cover crops, and methods of tillage. Spraying studies. Kans.

Apples.

Spraying of apple orchards. Iowa.

Apple spraying and dusting experiments. Ill.

1/ See also Economic Entomology, p. 109, and Plant Pathology, p. 330.

Apples. (Cont.)

Spraying and dusting of apple. Ohio.

Dusting v. spraying. Ind.

A comparison of spraying and dusting on apples and peaches,
especially to try new dusts. Conn. State.

Spray service.--Investigations of principal causes of low-grade
apples in New Hampshire with a view to assisting growers to
adopt control measures. N. H.

Peaches.

A comparison of spraying and dusting on apples and peaches,
especially to try new dusts. Conn. State.

Peach spraying and dusting experiments. Ill.

Dusting and spraying peaches. Ill.

Grapes.

Dusting and spraying grapes. Ohio.

Vineyard management. Spraying investigations for the control
of insects and diseases of the grape. Iowa.

Miscellaneous Fruits.

Pear spraying investigations. Oreg.

Raspberries. Cultural and spraying experiments at South Haven
Station. Mich.

Spraying gooseberries. Ill.

Spray Residues.

Arsenical residue of fruits. (A & P) Wash.

Spray residue project. Oreg.

The amount of arsenic residues on apples produced in New Mexico. N. Mex.

The presence and amount of arsenic on sprayed apples. Me.

The chemistry of insecticides and fungicides. Toxic residues
on sprayed fruits. N. Y. State.

Vegetables

Improvement of methods of spraying vegetable crops. N. Y. State.

1/ FERTILIZERS

Fruits

General.

- Orchard fertilization studies. N. Y. State.
- Studies in orchard fertility. Calif.
- Orchard fertilizers. Iowa.
- Fertilizers for fruit trees in southern Oregon, including experiments with pears, peaches, and apples on different soils. Oreg.
- Use of fertilizers in the Hood River Valley. Oreg.
- Cultural experiments with orchard fruits. (1) The value of clean culture v. alfalfa sod mulch, grass sod mulch, and cultivation with cover crop in cherries and apples, (2) thinning experiment with plums, (3) pot culture experiment with various kinds of fertilizers. Mich.
- Fertilizer tests.--To determine the plant food needs of various field crops, truck crops, garden crops, and fruit crops. Miss.
- A study of the relative value of various nitrogenous materials of synthetic or by-product origin for orchard fertilization. Pa.
- The relative response of various fruit plants and of corn grown on the same soil to applications of fertilizer. N. Y. Cornell.
- Use of cover crops to retain fertility of nursery land. N. Y. State.
- Fertilizer requirements of nursery stock. N. Y. State.

Apples.

- Apple fertilization. Mich.
- Fertilization of apples. Ohio.
- Apple fertilizer experiment (Hillview apple fertilizer experiment). Ill.
- Fertilizers for apples. N. Y. State.
- Fertilizers and cultural tests with apples. Ala.

1/ See also Soils and Fertilizers, p. 372.

Apples. (Cont.)

The fertilization of apple orchards.	Md.
Apple orchard experiment with fertilizers.	Pa.
Fertilizer requirements for apples on Toxaway loam and Cecil clay loam soils.	N. C.
Effect of various commercial fertilizers and manure upon yield and tree growth and size and color of apple fruit.	Idaho.
Effect of fall fertilization upon growth and fruitfulness of apple and peach.	Ohio.
Plant food studies with apples located at J. L. Lippincott & Co., Riverton.	N. J.
The influence of nitrogen, potash, and phosphoric acid in apple production.	Del.
Study of the value of split or divided applications of nitrogen, of various nitrogen carriers, and of phosphorus and potash on growth and fruitfulness of apple and peach.	Ohio.
Orchard fertilization.--The effects of nitrogen in the form nitrate of soda and sulfate of ammonia on the growth and production of apple trees.	Ind.
Fertilizer experiments with apple trees, using nitrate of soda.	Me.
Apple orchard fertilizer experiments with special regard to amount and time of application of nitrate of soda.	Tenn.
Tests of different amounts of nitrate of soda for apples.	Mass.
The comparative effects of nitrate of soda and sulfate of ammonia on mature apple trees growing in sod.	N. Y. Cornell.
An experiment to determine the relative value of sulfate of ammonia and nitrate of soda as fertilizers for apple trees standing in sod.	Pa.
Pruning and fertilizing experiment on bearing apple trees.--To compare the effect of pruning and no pruning, and of a nitrogen fertilizer, on bearing apple trees under cultivation.	Ill.

Peaches.

Peach fertilization.	Mich.
Experiments in fertilizing peach trees.	N. H.
The fertilization of peach orchards.	Md.

Peaches. (Cont.)

- Fertilizer experiments with peaches in the Sandhill and Piedmont section. S. C.
- Fertilizer and variety tests with peaches. Ga.
- Effect of fall fertilization upon growth and fruitfulness of apple and peach. Ohio.
- Fertilizer tests with horticultural crops.--To determine the most profitable fertilizers for tomatoes, sweet potatoes, pecans, strawberries, and peaches. Miss.
- Peach experiments.--To determine (1) length of cultivation and time of seeding cover crop, (2) cultivated intercrop v. clean cultivation, (3) Japanese clover v. natural weed grasses supplemented with manure, on steep sites, (4) quantities of nitrates producing desirable responses, (5) necessary hoeing for uncultivated trees, (6) use of nitrates to counteract noncultivation. Ky.
- Study of the value of split or divided applications of nitrogen, of various nitrogen carriers, and of phosphorus and potash on growth and fruitfulness of apple and peach. Ohio.
- Effect of different sources of nitrogen upon peach production. Del.
- Nitrate of soda test on bearing peach trees. S. C.

Plums.

- Improvement of prune orchard conditions. (a) Trees are to be well pruned. (b) Fertilizers are to be applied. (c) Study of soil conditions to be made. (d) Records taken as to results in crop and fruit growth. Oreg.

Cherries.

- Fertilizers for sour cherries. N. Y. State.
- Study of factors affecting set of cherries in Sturgeon Bay District. Study of fruiting of cherry with reference to effects of pruning and fertilization. Wis.

Subtropical Fruits.

- Fertilizer and cultural trials in a bearing citrus grove. Calif.
- A study of the fertilizer requirements of citrus trees under field conditions. Calif.
- Citrus studies on the Yuma Mesa.--Studies of fertilizers best suited for citrus growing. Ariz.

Subtropical Fruits. (Cont.)

- Determination of the fertilizer requirements of Satsuma oranges. Fla.
- Determination of the effect of varying amounts of potash on the composition of oranges and grapefruit. Fla.
- Determination of the effect of various potash carriers on the growth of citrus trees and composition of the fruit. Fla.
- The effect of fertilization and other cultural practices upon the keeping qualities of citrus fruit. Calif.
- Cover crop and green manure studies in citrus groves. Fla.
- The limiting factors in fertilizing affecting the growth and production of the pineapple plant. Porto Rico.
- The effect on coffee of small and large applications of incomplete and complete chemical fertilizers. Porto Rico.
- A comparison of sodium nitrate with ammonium sulfate in coffee fertilization. Porto Rico.
- A study of the nitrogen-potash ratio in coffee fertilization. Porto Rico.

Grapes.

- Fertilizers for grapes. N. Y. State.
- Fertilization of the grape. Ohio.
- Fertilizers for grapes. N. Y. State.
- Grape fertilization. Mich.
- Grape pruning and fertilization. Ind.
- Grapes. Variety, pruning, fertilizer, and types of trellis experiments. Miss.

Small Fruits.

- Fertilizer tests on small fruits. Ill.
- A study of the effect of time of applying fertilizer to the dewberry upon growth and fruiting. N. C.
- Raspberry and dewberry fertilization. Mich.
- Bush fruit experiments. Blackberries.--To determine (1) variety adaptability, (2) value of nitrogen and phosphorus fertilizers. Ky.

Small Fruits. (Cont.)

Bush fruit experiments. Black raspberries.--To determine (1) variety adaptability, (2) value of nitrogen and phosphorus fertilizers. Ky.

Bush fruit experiments. Red raspberries.--To determine (1) variety adaptability, (2) value of nitrogen and phosphorus fertilizers. Ky.

Determination of fertilizer requirements of the blueberry. Fla.

Strawberries.

Fertilizer experiments with strawberries. Tenn.

Strawberry fertilization studies. Ind.

Fertilizer test for strawberries. La.

The fertilization of strawberries. Md.

Effect of fertilizer on strawberries. N. H.

Fertilizer and lime requirements for strawberries grown on Norfolk fine sandy loam soil. N. C.

A study of the effects of soil reaction and the use of fertilizers upon the strawberry. Ohio.

Fertilizer tests with strawberries, Irish potatoes, and cabbage in south Alabama. Ala.

Influence of fertilizers on yield, grade, and carrying (shipping) quality of strawberries. (P) Ala.

Fertilizer tests with horticultural crops.--To determine the most profitable fertilizers for tomatoes, sweet potatoes, pecans, strawberries, and peaches. Miss.

Nuts

Cooperative fertilizer tests in pecan orchards. Fla.

Fertilizer work with pecans at Selma. Ala.

Compilation of available information upon the varieties of pecans best suited to different localities and soil types in Florida, and collecting information as to the best-proven methods of fertilizing, propagating, and growing pecans. Fla.

Fertilizer tests with horticultural crops.--To determine the most profitable fertilizers for tomatoes, sweet potatoes, pecans, strawberries, and peaches. Miss.

Coconut fertilization, the substitution of sodium in sea salt
for potash. Porto Rico.

Propagation, planting, and fertilizing tests with tung oil trees. Fla.

Ornamentals

The response of flowers and ornamentals to manures and
chemical fertilizers. Ohio.

Phosphorus and potash for greenhouse roses. Ill.

Vegetables

General.

Vegetable fertility work. Ohio.

General fertility problems.--Amounts of manures and fertilizers
to keep soil fertile for vegetable production. Md.

Experiment in maintaining fertility in the garden. N. H.

Fertilizer tests.--To determine the plant food needs of various
field crops, truck crops, garden crops, and fruit crops. Miss.

Studies in soil fertility.--Garden fertilization. Minn.

Garden crop investigations.--Fertilizer garden project. Minn.

Fertilizer experiment with various vegetable crops in northern
Illinois. Ill.

A study of upland soil.--Truck crop fertilizer project. Minn.

Fertilizer experiments with market garden crops. Ill.

Influence of fertilizers on yield, grade, and carrying (shipping)
quality of vegetables. (P) Ala.

Experiments in general horticulture.--Garden fertilization. Minn.

Vegetable growers' rotations: Cabbage - beets; tomatoes - spinach;
lettuce - celery; also with beets replaced by buckwheat and rye,
Japanese millet, and ryegrass for green manures; and with spinach
and lettuce similarly replaced by rape (autumn), oats (spring),
timothy and rye; with different amounts of stable manure, and
fertilizer having more or less nitrogen, phosphorus, and potassium,
and with peat to supply organic matter equal to that in manure. R. I.

General. (Cont.)

- Vegetable growers' rotations: Beets - cauliflower; spinach - carrots, eggplant, also with cauliflower replaced by ryegrass and clover for green manure with 32, 16, and 8 tons manure, and fertilizer in each case; more and less nitrogen and phosphorus; peat; subsoiling and gravelling; horse manure with straw v. sawdust or shavings bedding. R. I.
- Vegetable growers' rotations. Crops variable; Ten cord manure v. fertilizer alone. R. I.
- Soil treatment for truck crops in a 4-year rotation in northern Illinois. Ill.
- Rotation and fertilizer experiments with vegetable and canning crops. N. Y. State.
- Soil management, fertilizer, and rotation experiments on Long Island. N. Y. Cornell.
- Composition of crops as influenced by fertilization and soil types. Fla.
- Use of phosphorus on garden crops. N. H.
- The relation of soil type to fertilizer applications on truck crops. N. J.
- Studies on size and arrangement of plats for reliable results in fertilizer and similar experiments. N. Y. Cornell.

Asparagus.

- Fertilization of asparagus. Pa.
- Plant food studies with asparagus. N. J.
- Fertilizers and manure for asparagus. N. Y. Cornell.
- Asparagus.--Effects of potash on yield and quality. Md.
- Fertilizer tests at Clemson and Monetta on asparagus. S. C.
- Chlorides and carbonates of potassium and sodium with more and less lime for asparagus. R. I.
- Asparagus.--Comparison of spring and summer applications of commercial fertilizers. Md.
- Specific effect of common salt and soda ash on asparagus. R. I.
- The use of green manures on asparagus. Pa.

Celery.

- Celery culture with stable manure substitutes. R. I.
- Fertility work with celery on muck land. Ohio.

Crucifers.

- Effect of different sources of nitrogen in growth and yield of cabbage. N. H.
- Cabbage. Effect on following crops. Fertilizer needs. R. I.
- A study of the fertilizer requirements of cabbage and tomatoes. Pa.
- Variety tests and fertilizer experiments with tomatoes, lettuce, spinach, and cabbage. Idaho.
- Cabbage fertilizer and irrigation experiments. N. Mex.
- Fertilizer tests with strawberries, Irish potatoes, and cabbage in south Alabama. Ala.
- Cauliflower.--Culture with stable manure substitutes. R. I.

Cucurbits.

- Fertilizer needs of squash in rotation. R. I.
- Cantaloupes. Manure v. fertilizers. Md.
- Fertilizer experiments to determine response of such crops as Irish potatoes and melons to various plant nutrients on the typical brown loam of the Central Basin. Tenn.
- Investigations to determine the fertilizer requirements, varieties, cultural methods, and seed "place effect" of the watermelon and cantaloupe. Mo.

Lettuce.

- Fertilizer tests on lettuce. S. C.
- Fertilizers for head lettuce at Avon.--Tests with commercial fertilizers. Colo.
- Lettuce culture with stable manure substitutes. R. I.
- Fertilizer experiments with lettuce.--Effect of fertilizers on size, texture, color, quality, yield, compactness, and time of maturity of lettuce. Ariz.
- Variety tests and fertilizer experiments with tomatoes, lettuce, spinach, and cabbage. Idaho.

Onions.

- Fertilizer needs of onions in rotation. R. I.
- Investigation of the rôle of organic matter in the production of onions. (2) Field work. Mass.
- Effect of varying the ratio, amount, and concentration of plant nutrients applied in onion growing. Mass.
- Cultural experiments with Bermuda onions, including methods of plant (set) growing, variety, and fertilizer tests. Mo.
- Study of the growth of onions as influenced by differential liming. Mass.

Peas.

- Garden peas. Fertilizers. Md.
- English pea fertilizer test.--To determine the proper analysis, source of nitrogen, and amount of fertilizer for English peas. Miss.

Sweet Corn.

- Fertilizer experiments with sweet corn. N. H.
- Sweet corn fertilizer. N. H.
- Sweet corn fertilizers. Ind.
- Fertilizer experiments with sweet corn for canning. Iowa.
- Influence of amounts and time of applying nitrate of soda to peppers, sweet corn, and tomatoes. N. J.
- Fertilizer experiments designed to determine the proper combination and use in nitrogen, phosphoric acid, and potash for sweet corn and potatoes. (P) Me.
- Sweet corn fertilizer investigations, Ill.
- Fertilizer experiments with sweet corn and tomatoes. A study of the kind and amount of fertilizer for sweet corn and tomatoes (sources of nitrogen, methods of applying fertilizer, the use of side dressings, etc.) N. J.

Tomatoes.

- Fertilizer experiments with tomatoes. Iowa.
- Tomato fertilizer test.--To determine the proper analysis, source of nitrogen, and amount of fertilizer for tomatoes. Miss.

Tomatoes. (Cont.)

- Tomato fertilizers. Cooperative fertilizer tests with cannery tomatoes. Ind.
- Field studies in tomato nutrition. N. Y. Cornell.
- The fertilizer work with tomatoes at Manzanola and Fort Collins with nitrates, superphosphate (acid phosphate), and potash. Colo.
- The influence of green manures supplemented by commercial fertilizers on tomato production. (P) Md.
- A comparative trial of various carries of nitrogen on tomatoes. Tenn.
- A study of the fertilizer requirements of cabbage and tomatoes. Pa.
- Variety tests and fertilizer experiments with tomatoes, lettuce, spinach, and cabbage. Idaho.
- Effect of various fertilizer treatments and of soil amendments on prevalence of nail head rust in tomatoes. Fla.
- Plant food studies with tomatoes. N. J.
- Tomato culture with stable manure substitutes in field and greenhouse. R. I.
- The canning industry in Maryland.--The effect of soil type and fertilizer ratios on the quality of the tomato. (P) Md.
- Fertilizer experiments with sweet corn and tomatoes.--A study of the kind and amount of fertilizer for sweet corn and tomatoes (sources of nitrogen, methods of applying fertilizer, the use of side dressings, etc.) N. J.
- Fertilizer tests with horticultural crops.--To determine the most profitable fertilizers for tomatoes, sweet potatoes, pecans, strawberries, and peaches. Miss.
- Influence of amounts and time of applying nitrate of soda to peppers, sweet corn, and tomatoes. N. J.

Miscellaneous Vegetables.

- Snap bean fertilizer test.--To determine the proper analysis, source of nitrogen, and amount of fertilizer for snap beans. Miss.
- Beet culture with stable manure substitutes. R. I.
- Spinach culture with stable substitutes. R. I.
- Variety tests and fertilizer experiments with tomatoes, lettuce, spinach, and cabbage. Idaho.

Miscellaneous Vegetables. (Cont.)

Effect of fertilizer on carrots.	N. H.
Carrot culture with stable manure substitutes.	R. I.
Carrots. Effect on following crop. Fertilizer needs.	R. I.
Eggplant culture with stable manure substitutes.	R. I.
Fertilizer and cultural tests with sweet potatoes and peppers.	Ga.
Influence of amounts and time of applying nitrate of soda to peppers, sweet corn, and tomatoes.	N. J.
Rhubarb: Chemical fertilizers with special reference to sulfate of ammonia.	Md.

Green Manures.

Japanese millet as green manure for tomatoes.	R. I.
Autumn-plowed mammoth clover, cowhorn turnips, soy beans, and spring-plowed mammoth clover, rye, and timothy, as green manures for ealy lettuce and beets.	R. I.
Timothy as green manure for celery, lettuce, and beets.	R. I.
Oats as green manure for celery. Effect on following crops.	R. I.
Red clover plowed under in autumn and spring as a green manure crop for lettuce and beets.	R. I.
Rape, oats, rye, and timothy as green manure for late celery.	R. I.
Rye as a green manure for tomatoes, lettuce, beets, and celery.	R. I.

PRUNING

Fruits

General.

Pruning experiments.	N. Y. State.
Bud selection for establishing frame branches of fruit trees.	Pa.
Pruning investigations.	Ind.
Pruning experiments.	N. Mex.
Pruning studies.	Calif.

General. (Cont.)

The effect of pruning young trees at planting time on the size of tree, framework, and root system. N. Y. Cornell.

Pruning (deciduous) fruit trees. Ariz.

Healing of pruning wounds. Mont.

Apples.

Apple pruning. N. J.

Orchard management. Investigations on the pruning of apple trees. Iowa.

Testing methods of pruning apples. Mass.

Apple pruning and training. Mich.

Pruning fruit trees.--To determine the best method of pruning apple trees to increase fruit production. Alaska.

Apples. Variety and pruning experiments. Miss.

Pruning and fertilizing experiment on bearing apple trees.--To compare the effects of pruning and no pruning, and of a nitrogen fertilizer on bearing apple trees under cultivation. Ill.

Cultural experiments with fruits. Pruning apples and plums. N. Dak.

Pruning of apple and peach. Ohio.

Pruning experiments with apples and pears. Oreg.

Pruning apples, pears, cherries, and grapes. Nebr.

Physiological effects of pruning apple trees. (A) W. Va.

The effect of pruning on growth and fruiting habits of apples, pears, peaches, plums, and cherries. N. Y. Cornell.

The relation of heavy, medium, and light pruning, high and low heading of apple trees to growth, earliness of fruiting, and yield. N. C.

Apple pruning experiment.--To compare the effects of no pruning, heading back, thinning, and severe thinning on young apple trees. Ill.

Effects of different types of pruning on mature apple trees. N. Y. Cornell.

A study of pruning methods for the Golden Delicious apple. S. C.

Pruning experiment on young apples and peaches. Ill.

Experiments in pruning young apple trees. N. H.

Pears.

- Pruning experiments with apples and pears. Oreg.
- Pruning apples, pears, cherries, and grapes. Nebr.
- The effect of pruning on growth and fruiting habits of apples,
pears, peaches, plums, and cherries. N. Y. Cornell.

Peaches.

- Peach pruning. Ind.
- Peach pruning experiments. Md.
- A study of methods of pruning peach trees. N. C.
- Peach pruning, technical phase. N. J.
- Peaches. Variety and pruning experiments. Miss.
- Pruning of apple and peach. Ohio.
- The rejuvenation of peach orchards. Md.
- Pruning experiment on young apples and peaches. Ill.
- The effect of pruning on growth and fruiting habits of apples,
pears, peaches, plums, and cherries. N. Y. Cornell.
- The effect of various methods of pruning upon early bearing, yield,
growth, and development of young cherry and peach trees. Idaho.

Plums.

- Improvement of prune orchard conditions. Oreg.
- The effect of pruning on growth and fruiting habits of apples,
pears, peaches, plums, and cherries. N. Y. Cornell.
- Cultural experiments with fruits. Pruning of apples and plums. N. Dak.
- Physiological effect of pruning fruit trees.--Sour cherries and
Italian prunes. W. Va.

Cherries.

- Pruning experiments on cherries. Ill.
- The effect of various methods of pruning upon early bearing, yield,
growth, and development of young cherry and peach trees. Idaho.
- Pruning mature sour cherries. N. Y. State.

Cherries. (Cont.)

Study of factors affecting set of cherries in Sturgeon Bay district. Study of fruiting of cherry with reference to effects of pruning and fertilization. Wis.

Physiological effect of pruning fruit trees.--Sour cherries and Italian prunes. W. Va.

The effect of pruning on growth and fruiting habits of apples, pears, peaches, plums, and cherries. N. Y. Cornell.

Pruning apples, pears, cherries, and grapes. Nebr.

Subtropical Fruits.

A physiological study of the effect of pruning upon the growth and productiveness of citrus trees and other horticultural plants grown under irrigation in arid regions of Southern California. Calif.

Grapes.

Pruning of the grape. Ohio.

Grape pruning and training. Ill.

Pruning grapes. N. Y. State.

Grape pruning project. Mich.

Cordon pruning. Calif.

Specific influence of pruning on growth and bearing of vine. Calif.

Vineyard management. Pruning investigations for a comparison of different systems of vine pruning. Iowa.

Experiments in grape training and pruning. Ma.

Grape pruning and fertilization. Ind.

Grapes. Variety, pruning, fertilizer, and types of trellis experiments. Miss.

Pruning apples, pears, cherries, and grapes. Nebr.

Small Fruits.

Bush fruit experiments. Dewberries. (1) Satisfactory method of pruning and training, (2) Value of nitrogen and phosphorus fertilizers. Ky.

Relation of amount and kind of pruning to fruit production in raspberries and blackberries. Ohio.

Physiological study of the dewberry.--Effect of pruning vines. N. C.

Strawberries.

Strawberries. (2) Topping experiments. Oreg.

Fruit Thinning

Effect of thinning on size, quality, and composition of deciduous fruits. Calif.

Thinning apples. Mont.

Thinning experiments with apples. Oreg.

Orchard management. (a) Apple thinning. Utah.

Peach thinning. Ill.

The effect of peach thinning. N. C.

Cultural experiments with orchard fruits. (1) Value of clean culture v. alfalfa sod mulch, grass sod mulch, and cultivation with cover crop in cherries and apples, (2) thinning experiment with plums, (3) pot culture experiment with various kinds of fertilizers. Mich.

Ornamentals

Roses. Effect of heavy and light pruning on the growth and yield. Md.

Tomatoes

Studies of the effects of pruning and staking tomatoes on yield, earliness, size, and quality of fruit and on cost of production. N. Y. Cornell.

Effect of pruning and staking tomatoes on earliness and total production. Ohio.

Effect of the time and amount of leaf pruning upon the rate of development of tomato fruits. Ohio.

PHYSIOLOGY

Growth

The histology of branch abscission in woody plants. N. Y. Cornell.

The influence of bending and spreading the branches upon the growth and bearing habits of apple and pear trees. N. Y. Cornell.

The effect of pruning and of fruiting upon the amount of dry matter produced by a given leaf area with apples, cherries, grapes, and gooseberries. N. Y. Cornell.

The influence of nitrogen and carbohydrate content of cuttings upon production of roots. Mont.

Histological changes produced by spiral girdling of young apple trees. N. Y. Cornell.

Relation of growth to fruiting of McIntosh apple. (P) Mont.

The effect of blooming and of setting and maturing fruit on growth and other behavior of trees. (A) Calif.

Studies of the fruit development of the peach. N. J.

Rate of growth of fruits of the apple measurements at New Brunswick. N. J.

Development of the pecan nut. (A) Ga.

The relation of the hydrogen-ion concentration of soils to growth of flowers and ornamentals. (P) Ohio.

Root crown development in common asparagus. Calif.

Garden peas.--Influence of temperature on the growth of peas. Md.

Studies of the factors influencing heading of greenhouse lettuce. Mass.

Nutrition

Orchard and strawberry nutrition. Mo.

Organic nutrition of fruit trees. Calif.

Physiological and nutritional study of the apple tree. N. Y. State.

Nutrient and water supply of fruits of the apple and their relation to water core and other physiological troubles. N.Y.Cornell.

Study of the seasonal changes in composition of Stayman apple trees. Ind.

Orchard fertilizer project.--(1) Growth, (2) carbohydrate production, and (3) nitrogen production in apple trees. Mich.

Influence of fertilizer applications upon the yield, growth, and other physiological functions of the apple grown in different soils. (A) Pa.

- Fundamental physiology of fruit production. Fla.
- A study of the effects of fertilizer limitation on fruit plants. Mass.
- Nutrition of fruit plants. (A) Mo.
- Studies on the growth responses of horticultural plants, associated chemical changes in reserve foods, and the utilization of nutrients. (P) N. J.
- The effect of shade on horticultural plants. Fruits, vegetables, and flowers used. Md.
- Catalase activity as an indicator of nutritive changes produced in fruit tree tissues by variations in environmental conditions. N. Y. Cornell.
- A study of the nutrition of peach trees and the factors which influence crop production. Ark.
- The nutrition of the cherry. Mich.
- Physiological study of the dewberry.--Food storage. (A) N. C.
- Nutrition studies in vegetable crop plants. Minn.
- Nutritive studies with greenhouse crops. Mich.
- Nutrition of the tomato.--Greenhouse and laboratory studies. N. Y. Cornell.
- Relation of length of day to blooming of violets. Md.

Reproduction

- Physiology of reproduction in horticultural plants. (A) Mo.
- The control of the season of fruiting of citrus trees. Porto Rico.
- The factors influencing time of blooming of the pineapple plant. Porto Rico.
- The causes of premature development of seed stalks in celery and studies of factors affecting reproduction. N. Y. Cornell.
- Premature seeding of celery. Mont.
- Factors affecting seed-stalk development in cabbage. N. Y. Cornell.

Maturation

- Physiological changes occurring in the storage and ripening of fruits and vegetables under varying conditions. Minn.
- A study of the factors influencing red color in apples. (P) Md.
- Maturity of the pineapple. (1) A study of the factors governing maturity of the pineapple. (2) A study of the factors affecting decay in shipping. Porto Rico.
- The decomposition of chlorophyll in Satsuma orange rinds. (A) Ala.
- Factors affecting the ripening of the Concord grape. (A) Okla.
- A study of the coloring matter of cranberries. (A) Mass.
- Dormancy studies on tuber, bulb, and root crops. Calif.
- Application of the ethylene gas treatment to ripening of tomatoes and blanching of celery. Ohio.
- Influence of climatic factors and methods of handling upon carbohydrate and protein metabolism in the garden pea. Calif.

Hardiness

- Hardiness studies in fruit breeding.--(1) The inheritance of hardiness. (2) A determination of the hardiness of seedlings by artificial freezing tests. (3) An investigation of the plants. (4) A determination of the conditions under which plants are most likely to be injured by low temperatures. (A) Minn.
- A study of the nature, causes, and prevention of winter injury to fruits, with special reference to the apple. (A) N. H.
- Identification and study of factors determining hardiness and establishing methods to increase it. (A) Mo.
- Winter injury to fruit crops. (P) Wash.
- Nature of winter injury arising from fall planting of apple trees. Minn.
- Freezing points and resistance to freezing of various fruit organs. N. Y. Cornell.
- Winter injury of apple trees. N. Y. State.
- A study of the susceptibility to winter injury of peach trees as affected by factors of soil fertility and management. (A) N. C.

- The relation of condition in peach tree to immunity or susceptibility to winter injury. (A) N. C.
- A study of some factors influencing the hardiness of the peach. (A) Md.
- A study of the effects of hot desiccating winds upon citrus trees in southern California. Calif.
- The factors affecting winter injury to figs. Calif.
- A study of the relation of winter injury to brambles to differential fertilization with potash salts. (A) Mass.
- Cold resistance in sweet corn in its relation to quality, size, and earliness. Mass.
- Hardening-off process in vegetable crop plants. Minn.

Miscellaneous

- Miscellaneous physiological investigations in connection with the pineapple plant. Porto Rico.
- Pectic constituents in tomatoes with special reference to quality of canned product. (A) Md.
- Studies relating to the set and shape of fruit of forced tomatoes. Wis.
- Study of the conditions affecting the production and vegetative propagation of Washington asparagus. Mass.

FRUIT BUD FORMATION

Fruits

General.

- The composition of bearing and nonbearing fruit spurs throughout the year. Md.
- Pruning as a factor in bud formation and differentiation. (A) Oreg.

Apples.

- Causes and means of control of fruit bud formation on the apple. (A) N. H.
- Apple variety fruit spur study. Mass.

Apples. (Cont.)

Fruit spur and biennial bearing studies of apples. Md.

Some factors influencing fruitfulness in the apple, including moisture, sunlight, fertilizers, pruning, ringing, girdling, and thinning. Va.

A study of the fundamental factors concerned in the phenomena of fruit production in the apple and other fruits. (P) Del.

Factors influencing the functioning of apple fruit spurs, with reference to biennial fruiting. Wis.

Factors which influence the fertility and sterility of apple blossoms, and the setting of fruit. (A) Ark.

Effect of pruning and nitrogen fertilizer upon the off-year production of Wealthy apple trees. Wis.

Ringing of apple trees. (P) Ohio.

Peaches.

The effect of bud and spur defoliation on fruit bud formation. Md.

To determine the cause of premature development of peach buds and how to prevent premature development. (A) Okla.

Miscellaneous.

Fruits buds of pecans. Ala.

A study of fruit bud formation in relation to annual and alternate bearing of pecans. N. C.

Factors influencing the bearing habit of the Anjou pear, including girdling, bridge grafting, spur pruning, artificial bending of branches, heading v. thinning out, etc. Oreg.

A study of fruit bud differentiation of the strawberry in relation to the time of applying fertilizer. N. C.

Fruit bud formation of the strawberry. Pa.

PROPAGATION

Fruits

General.

Fruit stocks investigations. Nebr.

Improvement of fruit stocks. (P) Pa.

General. (Cont.)

Orchard stock investigations (hardiness).	Iowa.
Deciduous fruit. Root stock investigations.	Calif.
Nursery stock investigations in relation to bud selection, root selection, and the reciprocal relation of stock and scion. (A)	Me.
Stock and scion investigations.--To study the interrelation of stock and scion in both its commercial and scientific aspects.	Ind.
Sources and varieties of seed for nursery seedling stocks.	N. Y. State.
Methods of growing nursery seedling stocks.	N. Y. State.
Study of nursery seedling stocks storage conditions.	N. Y. State.
Comparison of nursery seedling stocks from various regions.	N. Y. State.
Asexual propagation of nursery seedling stocks.	N. Y. State.
Factors affecting the striking of cuttings.	Ohio.
Nursery plantings of trees and shrubs. (Fruits and ornamentals).	Ky.
Propagation of fruits and ornamentals in the State orchards at Sioux Falls, Watertown, and Eureka.	S. Dak.

Apples.

Methods of propagating apples.	N. Y. State.
Propagation of apples from selected buds.	N. Y. State.
The improvement of root stocks for apple trees. (P)	W. Va.
Orchard stocks for the apple.	Iowa.
Development of methods of producing hardy apple stocks. (P)	Wash.
Study of the factors affecting the growth of apple grafts.	Wis.
A study of methods of propagating apples from cuttings. (P)	S. C.
The propagation of apple trees on their own roots.	Md.
The interrelation of stock and scion in apples. (A)	Mass.
The relation between shape and yield of apple trees. (P)	Me.
Test of a number of new varieties of apples.	N. Mex.
Studies upon the physiology of seed germination.--Germinations and storage of the apple seed.	Iowa.

Pears.

- Pears.--A study of stock propagation. Miss.
- Test orchard of pear stocks. Oreg.
- Determining the best methods of propagating blight-resistant pear stock from root cuttings. Oreg.
- Nursery propagation.--To develop a pear stock free from the tenderness and blight susceptibility of the quince, but capable of dwarfing the trees sufficiently to facilitate blight and psylla control. Mich.

Cherries.

- Cherry stock investigations. Mich.
- Interrelation of stock and scion in cherry graftage. Vt.

Plums.

- Stocks for plums. N. Y. State.

Subtropical Fruits.

- Investigations of the methods of propagation of tropical and subtropical fruits. Hawaii.
- Propagation experiments with various citrus plants. Fla.
- Citrus root stock investigations. Calif.
- The influence of stock in the production of citrus fruits. Porto Rico.
- Tests of various citrus varieties on different root stocks. Fla.
- Tests of different stocks as root stocks for the Satsuma orange. Fla.
- Banana cultural test.--To determine the most suitable banana material for propagating purposes. Guam.
- Propagation of the pineapple.--To determine the factors affecting the quality of the slips. Porto Rico.

Small Fruits.

- Grape varieties on hardy stocks. N. Y. State.
- Raspberries. Variety test and studies on propagation from cuttings. Miss.
- Blueberry propagation. (P) Miss.
- Blueberry investigations. Propagation by layering. Mass.

Nuts

Studies in nut culture and propagation.	N. Y. Cornell.
Walnut grafting investigations.	Mo.
Stocks for pecan grafting.	La.
A record of yields from individual pecan trees as a basis for bud propagation studies.	N. C.
Compilation of available information upon the varieties of pecans best suited to different localities and soil types in Florida, and collecting information as to the best proven methods of fertilizing, propagating, and growing pecans.	Fla.
Variety and stock tests of pecan and walnut trees at the Gainesville Station.	Fla.
Propagation, planting, and fertilizing tests with tung oil trees.	Fla.

Ornamentals

Propagation of shrubs.	Wis.
Propagation of ornamental plants.	N. J.
Propagation of hard-wooded ornamentals.	N. Y. Cornell.
Propagation of fruits and ornamentals in the State orchards at Sioux Falls, Watertown, and Eureka.	S. Dak.
Nursery plantings of trees and shrubs. (Fruits and ornamentals.)	Ky.
Rose propagation and stocks.	N. Y. Cornell.
Summer-budded v. winter-grafted roses.	Ill.
Germination of orchid seed.	Ill.
Studies in orchid seed germination.	N. Y. Cornell.

Vegetables

Germination tests of vegetable seed.	N. Y. State.
Vegetable seed production.	Alaska.
Seed production. (b) Production studies with carrot and parsnip seed growing.	Idaho.

Cabbage and cauliflower. Methods of growing seed of especially adapted varieties.	Md.
Production of healthy cauliflower seed.	N. Y. State.
Seed studies. The germination of lettuce seed.	Minn.
Onion studies.--Seed production.	Utah.
A study of seed production of spinach and of cabbage-collard hybrids.	Ga.
Tomato seed production.	Ind.

HARVESTING, STORAGE, AND TRANSPORTATION

Fruits

General.

Harvesting, handling, and shipping of deciduous fruits.	Calif.
Cold storage investigations.	Ind.
Planning and operating storage houses.	Pa.
Management of a cool apple storage cellar.	Ind.
Orchard management.--Fruit harvesting. (1) Indexes for harvesting peaches.	Utah.
Fruit harvesting and handling. (P)	Oreg.
Physiological aspects of fruit storage. (A)	Md.
Physiology of ethylene gas ripening.	Mich.
Investigation of respiratory enzymes. (Effect of ethylene.)	Minn.
Fundamental studies of metabolic activities of fruits with special reference to their ripening and keeping in cold storage.	Calif.
An experimental study of the drying of fruit and vegetables and of packing dried fruit.	Calif.

Apples.

- Apple, storage. N. H.
- Cold storage problems with apples. N. Y. Cornell.
- Apple storage to study the keeping of apples during the winter months in a farm storage house, temperature and humidity relations being recorded. N. C.
- Cold storage for Iowa apples. Iowa.
- Apple orcharding trials. Comparative varietal studies.--
Storage endurance. Vt.
- Relation of firmness of apples at harvest to keeping in storage. N. Y. Cornell.
- The influence of cultural methods and conditions of growth on the keeping qualities of apples. Pa.
- A study of the factors which influence the production, storing, and shipping of apples. Ark.
- Chemical changes in the ripening and storage of the apple.--
Keeping quality of apples as related to acidity changes and temperature control during cold storage. Iowa.
- Respiration of apples at low temperatures. N. Y. Cornell.
- Measurable characteristics of maturing and ripening apples. (A & P) Wis.
- Time of picking fruit.--Picking of Spitzenberg and Newtown apples and Anjou pears with reference to their storage life and quality. Oreg.
- Prevention and control of apple storage scald. N. Y. Cornell.

Grapes.

- Storage of grape varieties. Ill.
- A study of factors involved in the production, storing, and shipping of grapes. Ark.
- An experimental study of the possible length of the storage period of a selected lot of table grapes and the optimum temperature at which the fruit should be held. Calif.
- Studies on the freezing and storage of vinifera grapes. N. Y. Cornell.

Miscellaneous Fruits.

- Factors determining the storage of Idaho prunes. (P) Idaho.
- Freezing and storage of citrus fruits. N. Y. Cornell.
- Chemical changes which occur in the cranberry during ripening and after harvesting. (A) Mass.
- A study of factors involved in the production and shipping of cantaloupes. Ark.

Vegetables

- Vegetable storage. Alaska.
- Storage of vegetables.--To study (1) temperature and humidity, (2) changes in weight and chemical composition, (3) correlation of chemical composition with cooking qualities, (4) methods of storage and advisable modifications, (5) storage conditions and facilities on average farms, (6) culture of certain vegetables with a view to storage and a better year-round table. (P) Okla.
- An experimental study of the drying of fruit and vegetables and of packing dried fruit. Calif.
- Storing experiment.--A study of temperature and keeping quality of vegetables stored in pits. N. H.
- A study of the methods of vegetable storage now in use. (P) Idaho.
- Experiments in storing cabbage. Mont.
- Celery storage at Littleton.--Earth pits, cement pits, and cellar storage. Presence of diseases on plants at storage. Colo.
- Storage of the husk tomato in the dehydrated condition. Minn.
- Tomato investigations concerning quality, etc. Ind.
- Growing Sweet Spanish onions.--To study the culture and storage under Southwestern conditions of the Sweet Spanish onion. Ariz.
- A study of the conditions determining successful storage of potatoes, carrots, cauliflower, and cabbage. (P) Idaho.

MISCELLANEOUS

- Experiments in general horticulture. New orchard. Minn.
- Miscellaneous horticultural studies. Ariz.

Miscellaneous project.	W. Va.
Horticultural survey. Bush fruits. (a) Dewberries. (b) Blackberries. (c) Raspberries. (d) Gooseberries. (e) Currants.	Utah.
Horticultural survey. (a) Small fruits.	Utah.
Horticultural survey. Winter injury.	Utah.
Nursery and orchard and nursery and greenhouse stock inspection.	Nebr.
Nut trees as a money crop in Michigan.	Mich.
Tomato products.	N. Y. State.
Utilization of surplus fruits and vegetables and their by-products. (P)	Ga.
A study of the avocado and other Hawaiian fruits as a source of oil and other food products.	Hawaii.
Investigation regarding edible canna and other crops, and commercial sources of starch under tropical conditions.	Hawaii.
Composition of vegetables.	N. H.
Factors affecting the keeping qualities of flowers.	N. Y. Cornell.
Carnations.--A study of calyx splitting.	Md.
Planning the Iowa farmstead.	Iowa.

M E T E O R O L O G Y

Accumulation of meteorological data for 41 years.	Colo.
Weather observations.	La.
Weather record.	Minn.
Record of weather observations.	Minn.
Weather observations with reference to frost protection.	Mass.
Meteorological observations.	Mont.
Collection of meteorological data.	Virgin Islands.
Crop damage (from various causes).--One thousand records of crop damage accumulated.	N. Dak.
The relation of the climate of New York to the agricultural industries of the State.	N. Y. Cornell.
The quantities, forms, and sources of nitrogen and sulfur contained in the rainfall at Ithaca, 1927.	N. Y. Cornell.

P L A N T P A T H O L O G Y

TAXONOMY

- Mycological survey of Porto Rico, Bermuda, and the Virgin Islands. N. Y. Cornell.
- Monographic studies in the genera *Sclerotinia* and *Botrytis*. N. Y. Cornell.
- Morphological and taxonomic studies of the *Pyrenomyces*. N. Y. Cornell.
- The *Cercosporas* of Porto Rico. N. Y. Cornell.
- A study of the genus *Cercospora*. N. Y. Cornell.
- Life histories and classification of the fungus genus *Myco-sphaerella*. (A) Md.
- Theilavia basicola*, a study of the perfect stage. Conn. State.
- Poronia leporina* and other tropical *Poronias*. N. Y. Cornell.
- A study of *Pythiums*. Conn. State.
- Soil actinomycetes. (A) N. J.
- The *Ustilaginales* of North America. Conn. State.
- The rusts of Connecticut. Conn. State.
- Rust investigations. (A) Ind.
- The study of microspores, "spermatia" in their relation to life history and propagation of certain ascomycetes. (A) Ga.
- The physiology of *Phytophthoras*. W. Va.
- Investigations on the genus *Phytophthora*.--To determine the pathogenicity of various species of *Phytophthora* and to work out a satisfactory classification scheme. Porto Rico.

ECOLOGY

- Effect of manuring and continuous cropping without manure on root rot of tobacco. Ky.
- The effect of fertilizers, acids, or alkaline residues on black root rot. Conn. State.

- Black root rot of tobacco. Relation of soil reaction. Comm. State.
- Studies in plant metabolism and growth. Effect of nightly illumination on the control of seedling diseases. Minn.
- Study of environmental conditions influencing the development of stem rust in the absence of an alternate host (barberry). (A) Nebr.
- The influence of environment on infection by plant parasites. (A) Wis.
- Dendropathological work. Relation of environment to damping off. Minn.

GENERAL DISEASES

- Study of plant pathogenes from the point of view of their biological characteristics. (A) Mich.
- Root rot diseases of New Mexico plants.--To obtain information as to the cause, nature, and control of these diseases. N. Mex.
- Studies in the physiology of the genus *Fusarium*. (A) W. Va.
- Fusaria* causing wilt in Tennessee. (A) Tenn.
- The fusarial diseases of plants. (A) Mo.
- Investigation of *Verticillium* wilts. N. J.
- Studies of *Sclerotium rolfsii* and related species. N. Y. Cornell.
- Sclerotium* wilt diseases. (A) La.
- Fruit diseases. Biology of *Sclerotinia* spp. Minn.
- Studies of fruit rotting *Sclerotinia*ae. (A) Md.
- Seed-borne plant diseases. N. Y. State.
- Control of seed-borne infections. (A) N. C.
- Corn seed treatment.--A study of commercial seed treatment preparations to determine their comparative values in controlling seed-borne diseases. Miss.
- Gonidia formation in saprophytic bacteria and its relationship to filterable virus diseases of plants. (A & P) Ark.

FIELD CROP DISEASES^{1/}

Cereals

General.

Cereal disease investigations.	N. J.
Field crops disease investigations.	N. J.
Investigations on disease control of root and seed infecting diseases of flax, cereals, and small grains.	N. Dak.
Cereal and forage crop diseases. Imperfects on cereals and roots, mainly on the host range of <i>Helminthosporium</i> causing a serious root and foot rot of wheat, barley, and rye.--To determine the conditions under which the disease develops.	Minn.
Disease investigations with cereals and forage crops. Disease studies with cereals -- oats, wheat, barley, and corn.	Iowa.

Root and Ear Rot.

Effect of seed treatment upon the control of corn rot diseases.	Ill.
Root, stalk, and ear rots of corn. (A)	Ind.
Corn diseases.--Dry rots of ear and stalk, leaf spots, seedling blights, and root rots. (P)	Iowa.
A study of the root rot diseases of corn.	Ky.
Corn root rot. (P)	Md.
Corn root rot investigations. (A)	Ohio.
The study of corn root rot and <i>Fusarium</i> root rot of clover. (A)	Ohio.
Corn root rot, its control and relation to wheat scab.	Wis.
Occurrence of corn ear rots in given areas and their effect on the constituents of affected ears and their progeny. (A)	S. Dak.
Cereal diseases investigations. Studies of the behavior of and control methods for wheat rust, wheat, oats and sorghum smuts, and corn smut and root rot.	Kans.
Wheat root rot and wheat head blight in their effects on deterioration and reduction in yield of wheat. (A)	Tenn.
A study of the stem rot of rice caused by <i>Sclerotinia oryzae</i> Catt. (A)	Ark.

^{1/} See also Field Crops--Breeding--Disease Resistance, p. 151.

Scab.

- Cereal and forage crop diseases. Scab of cereals. Minn.
- Wheat scab, etc. Md.
- Corn root rot, its control and relation to wheat scab. Wis.
- Oat smut and wheat scab. W. Va.
- Investigations of cereal diseases, especially wheat scab, barley stripe, and grain rust. Wis.
- Wheat root rot and wheat head blight in their effects on deterioration and reduction in yield of wheat. (A) Tenn.

Rusts.

- Investigations in cereal grains. Uniform rust nursery. Minn.
- Uniform rust nursery. Mont.
- Wheat and oat nursery studying with rust problem. Mich.
- Rusts and other diseases of cereals. Calif.
- Investigations in the rusts of cereals. (A) Minn.
- Cereal rusts. Tenn.
- Cereal disease investigations. Studies of the behavior of and control methods for wheat rust, wheat, oats and sorghum smuts, and corn smut and root rot. Kans.
- Black stem rust of wheat. (A) Va.
- Cereal leaf rust investigations. (A) Ind.
- Dusting for the control of cereal rusts. N. Y. Cornell.
- Experiments to determine the best methods of controlling rust on wheat and barley. Wyo.
- Rust and smut control in wheat, other cereals, and grasses. N. Dak.
- Investigations of cereal diseases, especially wheat scab, barley stripe, and grain rust. Wis.
- Study of stripe rust of grains and grasses. Idaho.
- Treatments for disease control. Sulfur dust for black stem rust control on wheat. Minn.

Rusts. (Cont.)

The determination of the differential reaction of strains within a variety of wheat to physiological forms of Puccinia graminis tritici. (A)

Nebr.

A study of resistance of winter wheat to leaf rust. (P)

Kans.

Smuts.

Rust and smut control in wheat, other cereals, and grasses.

N. Dak.

Studies of the life histories of Ustilago avenae and U. levis.

N. Y. Cornell,

Cereal investigations. Investigations on new forms of smut.

Oreg.

Investigations on the inheritance and control of smuts in cereals.

Calif.

Miscellaneous tests. Smut control test.

Utah.

Control of smut diseases of cereals.

Iowa.

Cereal and forage crop diseases. Smut treatments.

Minn.

Comparison of various treating agents for grain smut control.

Idaho.

Cereal disease investigations. Studies of the behavior of and control methods for wheat rust, wheat, oats and sorghum smuts, and corn smut and root rot.

Kans.

Smut control of barley.

Mont.

Smut control in wheat and barley.

Mont.

Control of stinking smut of wheat.

Mich.

Miscellaneous diseases. (1) Loose smut of wheat.

Utah.

Loose smut of wheat.

(A)

Va.

Loose smut in wheat.

N. Y. Cornell.

Cereal and forage crop diseases. Smuts of sorghum.

Minn.

Oat smut and wheat scab.

W. Va.

Oat smut.

Wash.

Oat smut control.

(P)

Ohio.

Miscellaneous.

- Cereal and forage crop diseases. Ergot of cereals. Minn.
- Fusarium diseases of corn. Iowa.
- Oat blast studies. Mont.
- Control of straighthead or blight of the rice plant. Ark.
- Yellowberry in wheat. The cause of yellowberry in Turkey Red wheat in the Columbia River Basin and means for its control. Oreg.
- Cereal and forage crop diseases. Black chaff of wheat. Minn.
- Control of "take all" of wheat. N. C.
- An investigation on seed and seedling diseases of wheat, particularly as associated with Fusarial and Helminthosporial blights. (A) N. Dak.

Forage Crops

- Cereal and forage crops diseases. Imperfects on cereals and roots. Minn.
- An inquiry into the pathological aspects of alfalfa failures in Nebraska. (A) Nebr.
- Diseases of the alfalfa plant. Okla.
- Alfalfa root rot.--To determine the cause of rotting of alfalfa roots and possible remedy, including prevalence, symptoms, histological studies, physiology of diseased roots, isolation of causal organism and its identification, and proof of pathogenicity. (A) Colo.
- Pathological and physiological study of the anthracnose fungus (Colletotrichum Trifolii Bain) of alfalfa. (A) Miss.
- Miscellaneous diseases. (2) White spot of alfalfa. Utah.
- Control of Texas root rot of alfalfa and related crops. (A) Tex.

- Study of cotton and alfalfa root rot. (A) Ariz.
- The study of corn root rot and *Fusarium* root rot of clover. (A) Ohio.
- Studies on the life history and control of clover mildew. (A) Idaho.
- Resistance to clover diseases. Md.
- Disease investigations with cereals and forage crops. Disease studies with forage crops, alfalfa, soy beans. Iowa.
- Soy bean diseases. (A) N. C.
- Diseases of the soy bean and cowpea, with special reference to a bacterial blight, a wilt, and a mosaic. (A) Del.
- A study of the possibility of controlling anthracnose and mosaic diseases of field beans by developing immune sorts. N. Y., Cornell.
- An investigation of a disease of cultivated sunflowers known as sunflower wilt. (A) Mont.
- Sunflower wilt. Mont.
- Rust and smut control in wheat, other cereals, and grasses. N. Dak.
- Study of stripe rust of grains and grasses. Idaho.

1/
Root Crops

Sweet Potatoes.

- Sweet potato diseases, with special reference to their causal organisms. (A) N. C.
- Sweet potato diseases in storage and transit, with special reference to their control with chemical treatment. (P) N. C.
- Sweet potato diseases, with special reference to the prevention of field infection. (P) N. C.
- Sweet potato disinfection studies for the control of seed-borne fungi that cause heavy losses in the field. (P) N. C.

1/ See also Vegetable Diseases--Solanaceae, p. 351.

Sweet Potatoes. (Cont.)

Sweet potato diseases, with special reference to limiting factors of fungus growth.	(A)	N. C.
Investigation of sweet potato diseases.	(P)	N. J.
Sweet potato diseases.		N. J.
Seed treatment experiments. A comparison of organic mercuries and other disinfectants for control of black rot of sweet potatoes.		Miss.
Control of Texas root rot of alfalfa and related crops.	(A)	Tex.
Sweet potato mosaic.		Ark.
Investigation of the rot diseases of the sweet potato.	(A)	Del.

Sugar Crops

Sugar beet disease investigations.		Mich.
The cause of control of damping-off and root rot diseases of sugar beets.		Wis.
Sugar beet root rot and its control.		Ohio.
Sugar cane diseases. A study of sugar cane mosaic, root rot, and other important cane diseases as to their life history, dissemination, and possible methods of control.	(A)	La.
Root rot of sugar cane.		N. Y. Cornell.

Fiber and Oil Crops

Cotton.

Cotton seed treatment. A study of commercial seed treatment preparations to determine their comparative values in controlling seed-borne diseases.		Miss.
Cotton diseases. (2) Seedling diseases.		Fla.
Cotton diseases. (3) Rust mosaic of cotton.		Fla.
Cotton physiology. (1) Cotton rust.		Fla.
Control of Texas root rot of alfalfa and related crops.	(A)	Tex.

Cotton. (Cont.)

- Study of cotton and alfalfa root rot. (A) Ariz.
- A pathological and physiological study of cotton wilt (Fusarium vasinfectum Atk.). (A) Miss.
- Cotton diseases. An experiment to determine the effect on wilt and rust of a number of potash salts applied in varying amounts. Miss.
- A study of cotton "sore shin". (A) Ga.
- Cotton diseases. (1) Cotton wilt. Fla.
- A study of biological strains of cotton wilt fungus and of the effect of environmental factors on their pathogenicity. (A) Ark.
- Study of black arm of cotton. (A) Ariz.

Flax.

- Investigations on the alternarial disease of flax. N. Dak.
- A study of the pasmo disease of flax. N. Dak.

1/
Tobacco

- Tobacco diseases. Md.
- Field and laboratory studies of tobacco diseases. Fla.
- Tobacco diseases. (c) Investigation of the Fusarium wilt of tobacco. Wis.
- Tobacco diseases. (a) Study of root rot of tobacco caused by Thielavia. Wis.
- Tobacco diseases. (b) Investigation of the brown root rot of tobacco. Wis.
- Investigation of tobacco brown root rot. (A) Mass.
- A study of a new root rot disease of tobacco; brown root rot. (A & P) Ky.
- Study of the relation of inorganic and organic toxins to brown root rot of tobacco. Mass.
- Brown root rot--Tobacco sick soils. Conn. State.
- Investigation of black root rot of tobacco. (A) Mass.

1/ See also Ecology, p. 330.

Blackfire and wildfire diseases of tobacco.		Va.
Control of tobacco wildfire and blackfire.	(P)	Tenn.
The sources of infection of tobacco plant beds with the bacterial and angular leaf spot diseases and wildfire, and their control.	(A & P)	Ky.
Tobacco diseases. (d) A study of leaf spot disease of tobacco.		Wis.
Drought spot of tobacco and toxicity of species of Juglans.	(P)	Va.
A study of "Frenching" of tobacco.		Ky.
Tobacco diseases. (e) Investigation of "must" of tobacco.		Wis.
Tobacco diseases. (f) Investigation of the "shed burn" of tobacco.		Wis.
The nature of the cause of mosaic disease.		Wis.

FRUIT AND NUT DISEASES

Orchard Fruits

General.

Orchard disease investigations.		N. J.
Control of apple diseases in Arkansas.		Ark.
Studies of sprays and dusts for control of diseases of the apple.		Del.
Influence of environmental conditions on the development of certain apple diseases.	(P)	N. J.
Orchard dusting. Comparison of dusting and spraying for the control of insects and diseases on the apple.		W. Va.
Apple diseases in Wisconsin and their control.		Wis.
Apple diseases.		N. Y. State.
Fruit diseases. Experimental plum spraying.		Minn.
Investigation of fruit diseases--mainly peach diseases.		Mich.

Apple Blotch.

Apple blotch investigations--To determine the effect of dormant sprays upon the apple blotch fungus within the cankers and upon the subsequent development of the disease on fruit and young wood.

Ind.

Apple blotch.

Okla.

Apple blotch.

N. Y. Cornell.

Apple scab, blotch, bitter rot and other diseases of the apple and a critical study of the spraying program necessary for their control.

Va.

Canker. (See also Fire Blight.)

Apple blister canker control

Ill.

Investigations for the control of the blister canker of the apple.

Iowa.

Perennial canker of apple trees.

(A)

Oreg.

Peach tree canker.

Md.

Crown Gall.

Studies in crown gall.

Ohio.

Prevention of crown gall.

(A)

Tenn.

Crown gall and its control.

Wis.

Effect of crown gall on apple trees.

N. Y. State.

Study of the effect of crown gall and woolly aphis on yield of apples.

Tenn.

Study of the comparative infectiousness of the crown gall organisms.

Calif.

Bacteria in crown gall of apple.

Iowa.

Fire Blight.

Fire blight.

(P)

Pa.

Fire blight of pears.

N. Y. Cornell.

Fire blight of apples and its control.

Wis.

Infection experiments with fire blight of apple and pear.

N. Y. Cornell.

Fire Blight. (Cont.)

- Control of fire blight in a commercial pear orchard. N. Y. Cornell.
- Pear blight control with special emphasis on horticultural methods. Calif.
- Eradication of fire blight in a pear and apple orchard. Ky.
- Investigations of diseases of orchard fruits, especially apple scab, cherry leaf spot, and fire blight, in relation to control measures. (P) Wis.
- Disinfectants for blight control work (pears). Oreg.
- Life history of the fire blight germ Bacillus amylovorus. (A & P) Ark.

Root Rot.

- Root rot investigations with apples and pears. Oreg.
- Root diseases of fruit trees. N. Y. State.
- Root and collar rot of fruit trees. Ill.
- Black root rot of the apple. A study of symptoms, etiology, transmission, and control of this disease. (A) Va.
- Root and crown rot of apple. N. Y. Cornell.

Fruit Rot.

- Decay in fruits and its prevention in connection with harvesting, storage, shipping, dipping, and disinfection. (P) Oreg.
- Apple scab, blotch, bitter rot, and other diseases of the apple, and a critical study of the spraying program necessary for their control. Va.
- Apple fruit spot diseases. N. Y. State.
- The etiology and prevention of apple rots. (P) Wash.
- Control of black rot and some other prevailing diseases of late varieties of apples. (P) Tenn.
- Baldwin fruit spot investigations. Mich.
- A study of the effect of fertilization on the control of bitter pit. N. H.

Fruit Rot. (Cont.)

- Orchard management: Fruit harvesting. (2) Internal browning and water core of apples. Utah.
- Cork spot of apples. N. Y. Cornell.
- Study of the black end rot (hard-end) of the Bartlett pear. Calif.
- Fruit diseases. A comparative study of liquid sprays and dust fungicides for control of brown rot and scab of peaches. Miss.
- Bacterial spot of peach. A study of the life history of the organism, development of a spray material for control, and testing of cultural methods for control Ill.

Leaf Diseases.

- Apple leaf diseases. W. Va.
- Leaf spot of cherry and plum and its control. Wis.
- Apple rust. Detailed study of the life history of fungus or fungi causing apple rust in West Virginia. (A) W. Va.
- Bacterial leaf spot (Bacillus pruni) of the peach. (A) Del.
- An investigation of Coryneum beijerinckii Oud (peach blight or shot-hole fungus). Calif.
- Investigation of diseases of orchard fruits, especially apple scab, cherry leaf spot, and fire blight, in relation to control measures. (P) Wis.

Scab.

- Apple scab control. (P) Me.
- Apple scab. Md.
- Spraying and dusting experiment for the control of apple scab. Pa.
- Spraying for apple scab with copper and sulfur fungicides. N. H.
- Apple scab, blotch, bitter rot and other diseases of the apple, and a critical study of the spraying program necessary for their control. Va.

Scab. (Cont.)

- Fruit diseases. Experimental apple spraying to determine the comparative value of Bordeaux mixture, commercial lime sulfur, and sulfur dust in controlling apple scab and other diseases of the apple. Minn.
- Investigations of diseases of orchard fruits, especially apple scab, cherry leaf spot and fire-blight, in relation to control measures. (P) Wis.
- Scab spraying investigations. (1) Testing of proprietary sprays. Oreg.
- Scab spraying investigations. (2) Determining strength of dilutions necessary to effect control. Oreg.
- Scab spraying investigations. (3) Studies of spraying practices as a basis for spraying program. Oreg.
- Fruit diseases. A comparative study of liquid sprays and dust fungicides for control of brown rot and scab of peaches. Miss.
- The period of spore discharge from the conidia of peach scab. Va.

Miscellaneous.

- A study of peach rosette. (A) Ga.
- Peach "yellows". Conn. State.
- Peach yellows and little peach: The cause, means of dissemination, and control. (A) Del.
- The Corticum disease of the apple. N. Y. Cornell.
- Apple measles. (A) N. Mex.
- Anthrachnose control of apple. Oreg.
- Fungus disease of the plum. Mont.
- A study of the cause of June drop in fruits in Delaware (peaches). (A) Del.
- A study of apricot bacterial gummosis and its control. Calif.

Citrus

- Gumming of citrus trees.--To determine the causes of gumming which is expressed outwardly in so-called foot rot, trunk gummosis, scaly bark, branch tears and abnormality of the sap in general. Porto Rico.
- Investigations of the causes, manner of development and treatment of gum diseases of citrus and other fruit trees. Calif.
- Citrus diseases. (1) Gumming. (A) Fla.
- Citrus diseases. (3) Citrus canker (growth characters of organism). (A) Fla.
- Citrus canker. Length of life of the organism in the soil and on old hosts, methods of distribution, and control methods. Fla.
- Citrus blight; its distribution, cause and control. Fla.
- Blast of citrus and other plants. Calif.
- A study of dry root rot disease of citrus trees. Calif.
- Causes of chlorosis in citrus trees in Arizona, and an attempt to resuscitate chlorotic citrus trees by means of soil treatments. (P) Ariz.
- Soil and nutrition studies with reference to die-back of citrus. (A) Fla.
- Citrus scab. Spraying experiments to determine the proper time for spraying and the best sprays for the control of the disease. Fla.
- Citrus diseases. (2) Melanose and stem end rot. (A) Fla.
- An investigation of the internal decline of lemons. Calif.
- Decay and deterioration of citrus fruits. Calif.

Small Fruits

General.

- Small fruit disease investigations. N. J.
- Fruit diseases. Diseases of small fruits and methods of control (especially raspberry diseases). Minn.

Brambles.

- A study of mosaic of brambles. (A) Oreg.
- Dewberry disease studies. (P) N. C.
- Spraying for control of blackberry and raspberry anthracnose. Ill.
- Fungus diseases of brambles. Oreg.
- Investigation of raspberry diseases. Mich.
- Raspberry disease control. Ohio.
- Raspberry diseases. N. Y. State.
- Roguing as a control for raspberry mosaic. Conn. State.
- Fruit diseases. Raspberry mosaic. Minn.
- Crown gall control of raspberries.--To determine a practical method of controlling raspberry crown gall through the application of various germicides applied to the soil in the plantation. Ill.
- Verticillium wilt or blue stem of black raspberries. (A) Oreg.

Cranberries.

- Cranberry investigations. (2) Fungus diseases and storage rots of the cranberry. Wash.
- Cranberry disease work. Mass.

Grapes.

- Studies on grape rots. Del.

Strawberries.

- Strawberry root rot. N. Y. Cornell.
- Strawberry diseases. Distribution, cause, and control. Fla.
- Strawberry diseases. (P) La.
- A study of the new disease of strawberries in Ohio. Ohio.

Figs and Dates

- Fig diseases. Calif.
- Study of the life history of graphiola leaf spot of date palms. (P) Ariz.
- Study of date fruit rot. (A) Ariz.
- Root rot. (1) Effect of calcium and sodium cyanide and ammonium sulfate on the nematode. (2) Control on figs and other woody plants by fumigation and mulching. (3) Other promising fumigants. (4) Effect of summer fallow and fallow combined with velvet bean culture. (A) Fla.

Nuts

- Coconut bud rot. Guam.
- Pecan scab. Ala.
- Field studies of the diseases attacking the pecan, including control measures. Fla.
- Pecan diseases. Diseases affecting the twigs, branches and stems of young bearing trees. (A) Fla.
- A study of pecan scab and related diseases of the pecan. Tex.
- Pecan scab control. Spraying and dusting experiments. Miss.
- Control of pecan scab by means of sprays. Ala.
- The control or avoidance of walnut blight. Calif.
- Walnut crown rot. An investigation of its cause and control and the factors influencing its occurrence. Calif.

VEGETABLE DISEASES

General

- Garden truck diseases. Miscellaneous truck crop diseases. Minn.
- Vegetable diseases in Porto Rico.--To identify and control various diseases of vegetable and truck crops, with special reference to leaf spots caused by fungi of the genera Cercospora and Helminthosporium. Porto Rico.

Vegetable disease investigations.	N. J.
Dusting truck crops for disease.	Md.
Vegetable diseases. (2) Bacterial blight (Smith's brown rot of Solanaceae and cucumber and other vegetables).	(A) Fla.
Control of diseases of greenhouse vegetables.	Nass.
Curly top disease of truck crops.	Oreg.
Vegetable root rot investigations.	Ohio.
Diseases of canning crops. Diseases of sweet corn.	Minn.
The relation of dipterous insects to the spread and development of soft rot of vegetables.	Minn.

Crucifers

Disease of cruciferous crops on Long Island.	N. Y. State.
Club root of crucifers.	N. Y. Cornell.
Damping-off of tomato, cabbage, and pepper.	N. Y. Cornell.
Cabbage diseases. Investigation of yellows, black rot, black leg, and club root.	Wis.
Cabbage yellows.	Iowa.
Blackleg disease of cabbage caused by Phoma.	Pa.
Cabbage seed treatment. A test of the relative effectiveness of the hot water and bi-chloride of mercury methods of treating cabbage seed for control of black leg.	Miss.
Diseases of cabbage, lettuce, and spinach in Texas, and their control.	Tex.
The dynamics of toxic action of fungicides. Treatments of cabbage seed with heat and mercuric chloride.	N. Y. Cornell.

Cucurbits

Cucurbit disease control.	(P) Me.
Cucurbit disease control.	Ohio.

- Control of vegetable diseases.--String beans, tomatoes, and cucumbers. Ill.
- Dust fungicides for control of diseases of cucurbits. N. Y. Cornell.
- Cucumber mosaic. Insect transmission from supposedly new insect host plants. Colo.
- Methods of control for cucumber mosaic and wilt diseases. N. Y. State.
- Fusarium wilt of watermelon. (P) W. Va.
- Control of downy mildew on cucurbits and other host plants. Fla.
- The downy mildew of cucurbits. (A) Fla.
- Downy mildew of cucurbits. (P) Ga.
- Investigation of downy mildew of cucumber and lettuce. (A) Mass.
- Studies of the cucumber mildew--life history of the fungus and methods of reproduction, wintering, and control. (A) W. Va.
- Downy mildew (P. cubensis and leaf blight (Macrosporium cucumerinum) of cucurbits. (A) Del.
- Control of greenhouse red spider and powdery mildew of cucumbers by a combination spray. Mass.
- Truck crop diseases. Spraying and testing of pumpkins for powdery mildew and control of onion mildew Colo.
- Anthrachnose of cucurbits. Ohio.
- Vegetable diseases. (3) Bacterial disease of cucumbers known as "angular leaf spot" and the disease of peppers known as "blister". (A) Fla.
- Vegetable diseases. (2) Bacterial blight (Smith's brown rot of Solanaceae and cucumber and other vegetables. (A) Fla.

Leaf Vegetables

Dusting and spraying of celery.		Ohio.
Celery disease investigations.		Mich.
The nature and control of white heart of celery.		N. Y. Cornell.
Heart rot of celery.		Utah.
Septoria leaf blights of celery and tomato.		N. Y. Cornell.
Lettuce tipburn investigations. (1) Studies to determine the cause of tipburn. (2) Comparison of improved strains and varieties of lettuce with reference to their resistance to tipburn.		N. C.
Nature and control of lettuce tipburn.		N. Y. Cornell.
Vegetable diseases. (4) Seedbed diseases of lettuce, celery, eggplant, and tomato.	(A)	Fla.
Bacterial diseases of lettuce.		N. Y. Cornell.
Investigation of downy mildew of cucumber and lettuce.	(A)	Mass.
Diseases of cabbage, lettuce, and spinach in Texas and their control.		Tex.
Blight-resistant spinach.		Md.

Legume Vegetables

Control of vegetable diseases.--String beans, tomatoes, and cucumbers.		Ill.
Bean disease investigations.		Mich.
Diseases of beans and their control.		Wis.
Bean bacteriosis.--Duration of survival of organism on seed.		Colo.
Bacterial blight of beans.		N. Y. State.
A bacterial blight of beans.		N. Y. Cornell.
Garden truck diseases. Bean bacteriosis and anthracnose.		Minn.
Anthracnose resistance and freedom in bean seed. (P)		Md.
Bean anthracnose.		N. H.

Bean anthracnose.		N. Y. Cornell.
Bean rust.	(A)	Va.
Hardshell and sclerema in beans.		N. Y. State.
Mosaic and dry root rot of beans.	(P)	Idaho.
Dry root rot of beans caused by Fusarium sp.	(A)	Va.
Dry root rot of beans.		N. Y. Cornell.
The characteristics and the control of certain Lima bean diseases.		Pa.
Yeast spot of Lima beans.	(A)	Va.
Diseases of canning peas.		Minn.
Diseases transmitted in pea seed.		N. Y. State.
Investigation of pea blight.		Wis.
Pea root rot resistance.	(P)	Md.
Root rot of peas.		N. J.

Roots

Nature of resistance and susceptibility in Cercospora leaf spot of beets.		N. Y. Cornell.
Scab of beets.		N. Y. Cornell.
Investigation of a carrot blight.	(A)	Mass.
Onion diseases.		Wis.
A new Alternaria disease of onions.		N. Y. Cornell.
A sclerotial disease of wild onions.		N. Y. Cornell.
The control of onion smut.		N. Y. Cornell.
Truck crop diseases: Spraying and testing of pumpkins for powdery mildew and control of onion mildew.		Colo.

Solanaceae

General.

Tomato diseases.	Tex.
Vegetable diseases. (2) Bacterial blight (Smith's brown) rot of Solanaceae and cucumber and other vegetables. (A)	Fla.
Tomato diseases.	W. Va.
Control of vegetable diseases.--String beans, tomatoes, and cucumbers.	Ill.
Garden truck diseases. Potato diseases.	Minn.
Potato diseases.	Wis.
Diseases of potatoes.	Wash.
Potato disease investigations.	Mich.
Potato disease investigations.	Ind.
Investigation of potato problems.	N. J.
Potato disease in relation to seed and crop production.	Iowa.
General methods of potato disease control.	Oreg.

Blight.

Early blight tuber rot of the potato. (P)	Me.
Irish potato spraying and dusting experiments. A comparison of various fungicides for control of early blight of Irish potatoes.	Miss.
Tomato spraying and dusting experiments. A comparison of various fungicides for control of early blight of tomatoes.	Miss.
A study of the possibility of controlling potato blight caused by <u>Phytophthora infestans</u> by developing a disease-resistant variety.	N. Y. Cornell.
Potato diseases, including potato wilt and late blight.	Fla.
Potato investigations. Tuber and leaf diseases.	Minn.
Identification and life history of organism causing chili blight. (A)	N. Mex.

Blight. (Cont.)

Study of western tomato blight.		Idaho.
Tomato blight.	(A)	Md.
Western yellow blight tomatoes.		Utah.
Tomato blight and related diseases.	(P)	Wash.

Leaf Diseases.

Tomato leaf spot and other tomato diseases.		Md.
Septoria leaf spot of tomato.	(P)	Tenn.
Septoria leaf blights of celery and tomato.		N. Y. Cornell.
Leaf mold disease of tomatoes.		Ohio.
Leaf mold of tomato.		N. Y. Cornell.
Tipburn of the potato and other plants.	(A)	Vt.

Degeneration or Virus Diseases. (See also specific crops.)

The nature and cause of mosaic diseases of plants.		Conn. State.
The nature of the cause of mosaic disease.		Wis.
Interrelation of virus diseases.		N. Y. Cornell.
Studies of virus diseases of plants: Nature of causative agent.		N. Y. Cornell.
Chemical work, including hydrogen-ion determinations, on the differences in potato plants and tubers due to certain degeneration diseases.		Me.
Cytology of "mosaic" tobacco and tomato.		N. Y. Cornell.
Insects in relation to spread of plant diseases.		Wis.
Insects as carriers of certain plant diseases.		Ind.
An investigation of potato diseases which attack the tuber internally, particularly those diseases which are commonly known as "degeneration troubles".	(A)	N. Dak.

Degeneration or Virus Diseases. (Cont.)

Degenerative diseases of the potato with special reference to mosaic, leaf roll, and spindle tuber.		Vt.
Preliminary studies on the cause, distribution, and importance of leaf roll, mosaic disease, and similar troubles of potatoes in Maine.	(A)	Me.
Degeneration diseases of potatoes, their nature, and control.	(A)	Mont.
Degenerative diseases of potatoes.		Ohio.
A study of the cause of degeneracy in potatoes.		Nebr.
Causes of degeneracy in potatoes.		Conn. Storrs.
Experiments to determine the effect of selection within a variety and the effect of size and shape and time of seed cutting on uniformity and yield of the potato; also to determine the relation between spent vigor and disease.	(P)	Me.
A study of potato spindle tuber and combinations of spindle tuber with other degeneration diseases.	(A)	Nebr.
Potato selection for seed purposes. Relation of time of roguing to spindle-tuber content.		Nebr.
Spindling sprout disease of the potato tuber.	(A)	Md.
Little potato disease.		Mont.
Virus diseases of potatoes.	(A)	Oreg.
Virus diseases of potatoes.	(A)	Idaho.
Testing sources of certified Irish potato seed for control of virus diseases.		Miss.
Studies of the mosaic disease of the tomato.		Ind.
Tomato mosaic control.		Ind.
Tomato mosaic.	(P)	Md.
Mosaic (tomatoes).		Utah.
Streak disease of tomatoes.		Ohio.
Mosaic and related diseases of the potato.	(P)	Wash.

Degeneration or Virus Diseases. (Cont.)

- The dynamics of toxic of fungicides; Heat treatments of potatoes for mosaic, etc. N. Y. Cornell.
- Control of potato mosaic by "tuber index" method. Wis.
- Control of mosaic diseases of potatoes. N. Y. Cornell.
- Control of mosaic and leaf roll in potato seed plats. N. Y. State.
- Effect of place on mosaic and leaf roll of the potato. (P) N. H.
- Potato seed and mosaic control. Md.
- Effect of nature of the seed piece used on the per cent of mosaic and leaf roll. N. H.
- Necrosis of potato tubers. (A) Vt.

Tuber-borne Diseases.

- The control of seed-borne diseases of the potato. (P) Nebr.
- Investigation of tuber-borne diseases of the potato. (P) N. J.
- A study of potato diseases. (a) Relation of the origin of the seed to potato diseases.
(b) Methods of treatment to control disease. Wyo.
- Potato seed treatment investigations. Idaho.
- Seed disinfection of potatoes. (P) Me.
- The dynamics of toxic action of fungicides:
Treatments of potatoes with mercuric chloride. N. Y. Cornell.
- Potato seed treatment. N. Y. State.
- Studies of Rhizoctonia and Fusarium wilt of potatoes. (A) Utah.
- The potato scab. (A) Vt.
- Potato scab control. Ohio.
- The potato wart disease and its control. Pa.

Wilt.

- Eggplant wilt. Utah.
- The control of eggplant wilt caused by Verticillium albo-atrum, R. and B. Mass.

Wilt. (Cont.)

- Nature and control of wilt of eggplant. N. Y. Cornell.
- Potato diseases, including potato wilt and late blight. Fla.
- The Fusarium wilt of potatoes. (A) Pa.
- Studies of Rhizoctonia and Fusarium wilt of potatoes. (A) Utah.
- Tomato wilt. (A) La.
- Tomato wilt. (P) Md.
- The Fusarium wilt of tomatoes. Method of infection, factors governing infection and relation of cell structure of host to resistance; also, to develop resistant varieties of tomatoes. (A) Ga.
- Fusarium wilt. (A) Utah.

Miscellaneous.

- Seed treatment and spraying potatoes with Bordeaux mixture. N. Dak.
- A new bacterial stem-root disease of tomatoes. N. Y. State.
- Vegetable diseases. (1) Phomopsis of eggplants. (A) Fla.
- Damping-off of tomato, cabbage, and pepper. N. Y. Cornell.
- Vegetable diseases. (4) Seedbed diseases of lettuce, celery, eggplant, and tomato. (A) Fla.

DISEASES OF ORNAMENTALS

- Diseases of ornamentals. Ill.
- Diseases of ornamental plants. Minn.
- Ornamental disease investigations. N. J.
- Investigations of diseases of ornamental plants. Control methods of diseases, especially relating to gladiolus, rose, and chrysanthemum troubles. Mich.
- Diseases of China asters. N. Y. State.

Aster diseases.--To study the causes and to develop control methods for aster wilt and aster yellows.	Ill.
Aster wilt studies.	Wis.
Fusarium wilt of the China aster.	Ind.
Diseases of carnations.	Md.
Carnation stem rot.	Md.
Dahlia diseases.	Md.
An investigation of the cause and control of red bulb disease of friesias.	Calif.
Corm rots of gladiolus.	N. Y. Cornell.
Diseases of bulbs, including tulips and narcissus.	(A) Oreg.
Bud rot of Bermuda lilies.	N. Y. Cornell.
Botrytis blight of peony.	N. Y. Cornell.
Mildew and black spot of roses.	N. Y. Cornell.
Fertilizers and disease resistance. Relation of fertilizer treatment to occurrence and severity of mildew and black spot on greenhouse roses.	Ill.

FOREST TREE DISEASES

Tree diseases.	Conn. State.
Miscellaneous investigations of diseases of trees and crops.	Iowa.
Diseases of forest trees. Studies on the decay of wood.	N. Y. Cornell.
Dendropathological work. Pathology of aspen in relation to the management and utilization of species in Minnesota.	Minn.
Control of damping-off diseases in forestry nurseries.	Ohio.
Soil treatment of damping-off disease of conifer seedlings.	N. Y. Cornell.
Control of certain diseases of the fir balsam.	N. Y. Cornell.

Dendropathological work. Effect of the degree of rot on the mechanical properties of Norway pine, spruce, birch and poplar.

Minn.

Blister rust of conifers.

Pa.

Control of white pine blister rust.

Conn. State.

Dendropathological work. White pine blister rust.

Minn.

White pine blister rust control work in California.

Calif.

Chestnut blight. Virulence studies.

Conn. State.

A study of certain types of chlorosis as found in Idaho on trees, shrubs, and herbaceous plants. (P)

Idaho.

MISCELLANEOUS DISEASES

Miscellaneous investigations of diseases of trees and crops.

Iowa.

Effect of soil management on plant diseases.

R. I.

Insect pests and plant diseases and their control.

Fla.

The relation of trillium rust to a rust of Brachyelectrum erectum.

N. Y. Cornell.

Diseases of Opuntia dellenii.

N. Y. Cornell.

Phytophthora leaf spot of Bryophyllum.

N. Y. Cornell.

Botrytis blight of golden seal.

N. Y. Cornell.

Fusarium wilt of golden seal.

N. Y. Cornell.

Investigations of the diseases of mushrooms. (P)

Pa.

Dendropathological work. The rotting of posts and poles.

Minn.

Chlorosis troubles.--To ascertain the best method of restoring the usual green color to trees and vines affected with chlorosis; also, best amount of iron sulfate to use.

N. Mex.

1/
DISEASE RESISTANCE

- The nature of disease resistance in plants. Wis.
- Plant serological investigations. (a) Specificity of constituents as a factor in the resistance of plants to disease. (A) N. Dak.
- Physiological mechanism of the relationships between host and infective disease agents of flax, cereals, tuber, and associated crops. (A) N. Dak.
- Plant serological investigations. (b) Serological investigation of the relationships existing between the leguminosae and symbiotic nitrogen-fixing bacteria, with special reference to efficacy of the latter. (A) N. Dak.
- Cytological changes in host plant. N. Y. Cornell.
- A study of the effect of mineral nutrition on the internal condition of potato plants in its relation to the action of Phytophthora infestans. N. Y. Cornell.

STORAGE DISEASES

- Decay in fruits and its prevention in connection with harvesting, storage, shipping, dipping, and disinfection. (P) Oreg.
- Pathological changes occurring in storage and ripening of fruits and vegetables under varying conditions.--Pathological changes occurring in fruits and vegetables in storage. Minn.
- Pathological changes occurring in storage and ripening of fruits and vegetables under varying conditions.--The effect of temperature and humidity on the development of storage rots. Minn.
- Pathological changes occurring in storage and ripening of fruits and vegetables under varying conditions.--The length of holding in storage in relation to pathological changes in fruits. Minn.
- Transportation diseases. Study of the break-down of fruit and vegetables due to suboxidation under storage conditions. Mich.

1/ See also Field Crops--Breeding--Disease Resistance, p. 151; Genetics--Inheritance of Disease Resistance, p. 252; and Horticulture--Breeding--Disease Resistance, p. 268.

A study of diseases of perishable crops in transit and methods of control.

Tex.

1/
FUNGICIDES

Studies of the physical and chemical properties of insecticides and fungicides.

(A)

Oreg.

The nature of the toxic action of various protectants and dust fungicides.

N. Y. Cornell.

Toxic action of fungicides on parasitic fungi.

(A)

N. H.

Fungicidal value and toxicity of certain spray materials.

Va.

New fungicides, their relative efficiency and practicability as compared with fungicides now commonly employed.

(P)

Tenn.

Cereal diseases. Commercial preparations for protection against wheat bunt by acid treatment and physiological responses of smut organism.

Colo.

Semesan and upsulum for the control of "damping-off" as a stimulus to germination.

Calif.

The effect of ammo-phos on the development of plant diseases.

Minn.

The effect of cyanamid on the development of plant diseases.

Minn.

Treatments for disease control. Cyanamid trials.

Minn.

A comparison of Bordeaux mixture and copper-lime dust as to the adherence of the copper content to potato foliage in spraying and dusting.

Me.

Dusting and spraying project. Control of (1) apple scab, codling moth, (2) "finish" of pears; effect of (3) casein spreaders with lime sulfur and lead arsenate sprays on apples, (4) lime sulfur on the set of apples, (5) the use of ferrous-sulfate - lime-sulfur combination, (6) the comparative fungicidal effectiveness of various spray materials.

Mich.

1/ See specific diseases.

Sulfur and sulfur compounds as fungicides and insecticides.	Tex.
Preliminary studies with sulfur or strong Bordeaux solution causing what is termed "burning" of foliage in cucurbits.	Tex.
Seed treatment materials.	Oreg.
Investigation of the use of chemicals for eradication of nematodes and parasitic fungi in greenhouse soils. (P)	Mass.
Spraying. Fruit disease control.	Ohio.
A study of the fundamental factors affecting the suspension, adhesiveness, toxicity, and general efficiency of copper fungicides. (A)	Mass.
The effect of fungicides and insecticides on plants. (A)	N. H.

PARASITISM OF FUNGI

Studies in parasitism; parasitism of <u>Colletotrichum lagenarium</u> .	Ohio.
Investigations into the life history and parasitism of <u>Sclerotium rolfsii</u> . (A)	Ga.

PLANT DISEASE SURVEY

A plant disease survey of Connecticut.	Conn. State.
Plant disease survey.	Ind.
Plant disease survey and miscellaneous diseases.	Me.
Annual plant disease survey.	Md.
Plant disease surveys and investigations. A survey of plant disease conditions and various minor lines of research as brought in by correspondence, farmers, and county agents.	Mich.
Plant disease survey.	Minn.
Plant disease survey.	N. J.
Notes on New York plant diseases.	N. Y. State.

Miscellaneous pathological investigations and plant disease survey.	Oreg.
Plant disease survey.	Pa.
Plant disease survey. Fusarium wilt of tomato, tomato mosaic, western yellow blight, white spot of alfalfa, yellow leaf blotch of alfalfa, eggplant wilt, heart rot of celery.	Utah.
Plant disease survey.	Va.
Tobacco disease survey of the United States.	Wis.
Inspection of orchards and nurseries.	Md.
Survey of canning crop diseases.	N. Y. State.
Forest disease surveys.	N. Y. Cornell.
Miscellaneous studies in plant diseases.	Ariz.
Minor studies on miscellaneous plant diseases. Routine diagnosis from specimens and answers to inquiries.	Calif.
Miscellaneous plant disease investigations.	Kans.
Dendropathological investigations. Miscellaneous Itasca experiments.	Minn.
Miscellaneous plant diseases.	Mont.
General project covering miscellaneous work.	W. Va.

PLANT PHYSIOLOGY^{1/}

PLANT NUTRITION

General.

Plant food resources.	(P)	N. J.
A study of the relation of the concentration of nutrient solutions to the growth of typical agricultural plants. Comparison of sand solution and soil cultures.	(A)	Calif.
Nutrition study of important Kansas crops. A study of the elemental composition of corn, kafir, wheat, oats, alfalfa, and other important crop plants.		Kans.
Physiological relationship of nutrient elements to plant growth.	(A)	R. I.
Studies in translocation of nutrients in plants.		N. Y. Cornell.
Chemistry and metabolism of plants under varying degrees of vegetation and reproduction.	(A)	N. H.
Studies in plant metabolism and growth. Effect of increased CO ₂ supply upon plant growth and reproduction.		Minn.
A study of the metabolism of roots.		Mo.
Metabolism of diseased and healthy corn in relation to soil fertility and fertilizer treatments.		Ill.
Metabolism studies with sweet corn.	(A)	Md.
Investigation of the food requirements of plants growing in sand or in soil cultures.	(A)	Md.
Effect of form and concentration of plant nutrients upon fiber production.		Oreg.
Ion-absorption in relation to plant growth.	(A)	N. J.
Studies on the growth and composition of plants as affected by the absorption of essential elements at different stages of plant development.		Calif.
Plant composition as influenced by variations in soil type.	(A)	Wash.

^{1/} See also Field Crops--Fertilizers, p. 201; Field Crops--Physiology, p. 224; Horticulture--Fertilizers, p. 302; and Horticulture--Physiology, p. 316.

General. (Cont.)

- Plants, their composition and properties. Tex.
- The chemical and physico-chemical properties of plant tissue fluids. Minn.
- Comparative studies on the biochemistry of normal and abnormal plants. (A) Minn.
- The relation of H-ion concentration to the growth of plants. Mo.
- Optimum pH values for plants. A study of the growth of plants upon plats whose pH value is under control. Del.

Mineral Requirements.

- Mineral nutrient requirements of the potato plant. (A) Md.
- Studies in plant metabolism and growth. Salt nutrition. Minn.
- The salt requirements of representative agricultural plants. (A) N. J.
- The relation of light, temperature, and atmospheric moisture to the physiological salt balance in nutrient solutions for plants. (A) Md.
- Relation of lime and magnesia to plant and animal growth.--To determine the influence and the relation of lime and magnesia to the life processes, both vegetable and animal; the bearing of these elements on cell production and function. Porto Rico.
- The occurrence, distribution, and effect of manganese in plants. Effect of manganese on the growth of plants and the development of their seeds. (A) Ky.
- Relation of chlorine to plant growth. Wis.
- Phosphorus relations of soils and plants. (A) Wis.
- Studies on potassium in relation to growth and development of plants. A study of the Neubauer methods of determining plant food needs and soil deficiencies. Ind.

Mineral Requirements. (Cont.)

- Availability and efficiency of various soluble and insoluble iron compounds in relation to plant production. (A) N. J.
- Plant studies with pyrite and other sulfides carrying traces of copper. Ariz.
- The relation of sulfur and sulfur compounds to cell structure. (A) Md.
- Influence of form and amount of sulfur on growth and development of seed on sulfur-loving plants. Wis.
- Function of sulfur as a plant food. (A) Wash.

Light Relation. (See also Ecology, p. 365.)

- A study of the influence of ultra-violet light on animal and plant life and the value of Cel-O-Glass as a material for the passage of this radiation. N. J.
- Delayed photosynthesis. N. Y. Cornell.
- Spinach.--To determine the effect of light on seed production in spinach. Alaska.
- Photoperiodism studies with economic plants.--To learn the importance of variation in day length and consequently of planting season for certain economic crops in the tropics. Porto Rico.
- Relation of wave length to synthesis of plant vitamins and comparison of rate of vitamin synthesis and rate of photosynthesis and of vitamin content and chlorophyl content. (P) Okla.
- A study of effects of different degrees of sunlight in fruit production and of chemical changes in internal conditions of plants so affected. (A) N. H.
- Studies in plant metabolism and growth. Effect of length of illumination period and light intensity upon growth and reproduction. Minn.
- Study of the effect of ultra-violet light on plant growth. (A) Mass.
- The effect of varying the length of day on plant growth and chemical composition. Md.

Carbohydrate Metabolism. (See also Field Crops--Fertilizers, p. 201,
Horticulture--Fertilizers, p. 302.)

Carbohydrate metabolism in plants. N. Y. Cornell.

Study of fundamental processes relative to the storage of sugars and other carbohydrates in the wood and inner bark of the maple (Acer saccharum). (A) Vt.

Investigation of the chemical constitution of certain polysaccharides found in plants, with special reference to physiological factors. Calif.

Nitrogen Metabolism. (See also Field Crops--Fertilizers, p. 201,
Horticulture--Fertilizers, p. 302; Soils and Fertilizers, p. 372.)

The nitrogen intake of Havana tobacco. (P) Mass.

Absorption of various forms of combined nitrogen by plants. (A) Ga.

1/ ECOLOGY

Optimum soil and climatic conditions suitable to the growth of individual crops. (P) R. I.

A study of the effects of certain climatic or environmental factors such as light, temperature, moisture, etc., under controlled conditions on the growth and development of plants. (A) Mich.

Influence of climatic factors on the chemical composition of plants. Wis.

Study of the correlation between crop yields and temperature and rainfall. Wyo.

Temperature relation of crop plants. A study of the maximum and minimum lethal temperatures of crop plants and the optimum temperature for their growth. (P) Kans.

Soil moisture and root development studies. Ariz.

1/

See also Plant Nutrition--Light Relations, p. 364.

- Relation of soil moisture to structural development and yield in small grains. (A) Colo.
- Water requirements of crops as related to plant characters and environmental factors. (A) Nebr.
- Absorption of water and excretion of solutes by potato tuber tissues as affected by temperature. N. Y. Cornell.

MISCELLANEOUS

- Physiological study of influences of different types of paper frost protectors on the growth of plants. Mich.
- Studies in regeneration and polarity. N. Y. Cornell.
- Vegetative plant propagation, with special reference to cuttings.--To find what causes or permits regeneration of roots, etc. (P) Md.
- A physiological study of possible symbiosis in Calluna vulgaris. N. Y. Cornell.
- Effect of inoculation of soy bean seed on the nitrogen content of the plant. Wis.
- A study of the cytoplasmic proteins of the healthy tobacco plant. (A) Md.
- Physiological investigations with drought-resistant plants. Relations of the morphology and physiology of plants to drought resistance. Kans.
- Chemical studies of pollen. Minn.
- A study of the "Golgi material" in plant cells. N. Y. Cornell.
- Development of the vessel from the cambium in growing tissues of Robinia pseudacacia. N. Y. Cornell.
- Study of amylase production in Botrytis cinera. N. Y. Cornell.

R U R A L E D U C A T I O N

- An analysis of the objectives and activities of parent-teacher associations. N. Y. Cornell.
- An analysis of the activities of district school superintendents in New York. N. Y. Cornell.
- Classification and analysis of the generic activities of
 (a) extension teachers of agriculture and home economics;
 (b) resident teachers in New York State Colleges of Agriculture and Home Economics. N. Y. Cornell.
- Organization and supervision of junior high schools in rural communities and villages. N. Y. Cornell.
- Education resources and lacks in rural communities. N. Y. Cornell.
- Case studies of discrepancies between mental ability and achievement. N. Y. Cornell.
- The value of group mental tests. N. Y. Cornell.
- The relation between the occupation of the parent and the mental ability and achievement of the child. N. Y. Cornell.
- A study of true-false and yes-no examinations. N. Y. Cornell.
- The educational status and vocational intentions of farm boys. N. Y. Cornell.
- Advanced courses for leadership in vocational education. N. Y. Cornell.
- A study of supervised farm experience in connection with school courses. N. Y. Cornell.
- Provisions of various States for financing rural education. N. Y. Cornell.
- A survey of human and agricultural resources in the Odessa patronage area. N. Y. Cornell.

1/
COST AND STANDARD OF LIVING

Rural living.--A preliminary survey of rural living in Minnesota.	(P)	Minn.
Standards of living in farm homes.	(P)	Conn. Storrs.
Cost and standards of living on Nebraska farms.	(P)	Nebr.
Standard of life of families on dairy farms in a typical hill section of southern New York.		N. Y. Cornell.
The standard of living of farmers in Wake County, N. C.	(P)	N. C.
A study of the cost of family living on Ohio farms.	(P)	Ohio.
An economic and social study of 500 farms and farm homes in representative areas in Arkansas.	(P)	Ark.
A quantitative and qualitative study of farm homes in Minnesota with special emphasis on the influence of the farm upon the management of the home and the life of the family.	(P)	Minn.
A study of the social and economic effect occurring as a result of marked lowering of land values to a group of farm families who purchased farm lands at or near peak prices.	(P)	Ky.
The standard of living on the farm as a factor in the cost of production.		Mo.
Environmental factors affecting the rural home.	(P)	Mich.
The relationship of housing to the health of the family in rural homes.	(P)	Va.
Housing in relation to farm labor turnover.	(P)	Md.
How farm families use their leisure.	(P)	S. C.
A study of standards of living in Montana public school dormitories.	(P)	Mont.

POPULATION

Rural population studies.		Iowa.
Rural migration in relation to ability and community advantages.	(P)	Mich.

1/ See also Home Economics--Home Management--Cost and Standard of Living, p. 261.

Movements of rural population in Missouri. Mo.

A study of the causes and effects of the decreasing number of farms in North Dakota. Schedule for sociological analysis to be applied to a typical county. (P) N. Dak.

The movement of farm population in northeastern Ohio. (P) Ohio.

Village population and service agencies. (P) N. Y. Cornell.

The origin and character of the rural population as affected by "soil quality". (P) Conn. Storrs.

The effect of the development of manufacturing in a given region on the welfare of the rural population. (P) Tenn.

SOCIAL GROUPS, INSTITUTIONS, AND ORGANIZATIONS

General.

Factors influencing the effective location of rural groups. (P) Mo.

Factors influencing the effective location and functioning of rural groups. (P) Wash.

The socialization of Iowa rural communities. Iowa.

A study of rural community areas in New York State. N. Y. Cornell.

Studies of selected types of rural social institutions. (P) Mont.

Rural community organization (community being defined as the rural trade center and territory adjacent to it). (P) Mich.

The process of community organization. (P) Mo.

A study of rural community organization in Missouri. Mo.

Organization and supervision of junior high schools in rural communities and villages. N. Y. Cornell.

Education resources and lacks in rural communities. N. Y. Cornell.

Rural social organization and agencies. (1) Factors entering into the success or failure of rural social organizations. (P) N. Dak.

A study of local and State rural social organizations in South Dakota contributing to a permanent agriculture. (P) S. Dak.

General. (Cont.)

- Community development trends. (P) Va.
- A study of rural community organization in Wisconsin. (P) Wis.
- Social status of the Spanish in rural Colorado. (P) Colo.
- Village population and service agencies. (P) N. Y. Cornell.
- Relation of town and country interests in a typical section of Oklahoma. (P) Okla.
- The relation of the social, economic, and educational conditions of families on Oklahoma farms to their membership and activity in farm organizations. (P) Okla.
- A study of Patterson colony, Patterson, Stanislaus County. Calif.
- A study of the village of Patterson, Stanislaus County. Calif.
- A social study of a rural area in Tompkins County. N. Y. Cornell.
- A sociological analysis of the village of Dryden, New York. N. Y. Cornell.
- A social survey of Locust Township, Columbia County, Pennsylvania. (P) Pa.

Young People's Organizations:

- Young people's organizations as a factor in rural life. (P) Mo.
- Study of attitudes, problems, and organizations of Montana rural youth. (P) Mont.
- Young people's organizations as factor in Virginia rural life. (P) Va.
- Young people's organizations as a factor in West Virginia rural life. (P) W. Va.

SOCIAL PSYCHOLOGY

- Investigations of the attitude among South Carolina farmers toward cooperative organizations. (P) S. C.
- A study of the attitude of farmers and their families towards farming. (P) S. Dak.
- A study of the attitudes of rural people towards organization policies and problems, together with the reasons for prevailing attitudes. (P) Va.

- Rural leadership. (P) N. Y. Cornell.
Group conflicts in rural communities. (P) N. Y. Cornell.

MISCELLANEOUS

- The sociology of the rural family. N. Y. Cornell.
Divorce in rural counties in New York and other states. N. Y. Cornell.
The effect of the development of manufacturing in a given
region on the welfare of the rural population. (P) Tenn.
A study of rural life worth imitating. N. J.

SOILS AND FERTILIZERS

GENERAL

Soil investigations.	S. Dak.
Soil investigations.	Fla.
Service work in soils.	N. Dak.
Soil studies, especially regarding conditions and properties of phosphoric acid, potash, and humus, and the nitrifying and other biological properties of the soil. (A)	Tex.

CHEMICAL PROPERTIES AND CHANGES IN SOILS

Chemical Methods.

Sand dilution method with growing plants as a means of determining available mineral plant food elements in Arizona soils. (P)	Ariz.
Improvement in methods of soil analysis.	Wis.

Chemical Composition.

Composition and properties of Texas soils.	Tex.
Physical and chemical studies on profile in New Jersey soils.	N. J.
Chemical study of Gallatin Valley soils.	Mont.
A study of the relation of soil type to chemical composition.	N. C.
To ascertain whether the composition of a soil type, as now distinguished, is fairly uniform and characteristic.	N. Y. Cornell.
Soil analysis.--A determination of the changes in the chemical composition of soil taking place through various methods of cropping under dry-land conditions.	Wyo.
A study of the underlying factors influencing soil fertility as evidenced by the chemical composition of the soil solution.	Calif.
Composition, formation, and determination of zeolites in soils. (A & P)	Ariz.

1/ See also Field Crops--Fertilizers, p. 201; and Horticulture--Fertilizers, p. 302.

Nutrient Movements.

Plant food losses from soils due to different crops. Mont.

Translocation of soluble salts in soils and its relation to amount and manner of application. Mich.

Lysimeter investigations. (1) Percolation from different soils receiving the same amount of irrigation water. (2) Percolation from same soil with same amounts of water with different cropping systems. (3) Percolation from alkali soils treated with alum and not treated. Irrigation water and percolation water from all lysimeters analyzed for salts in solution. Oreg.

Composition of the drainage water from soils, with special reference to the effects of liming, fertilizing, and cropping. N. Y. Cornell.

Lysimeter studies. N. Y. State.

A study of soil solution as governed by H-ion. Kans.

Base exchange in soils. (P) N. J.

Nutrient Availability.

Interrelations between H-ion concentration, absorption compounds, basic exchange phenomena, and plant nutrient availability. (P) Vt.

Availability and utilization of plant nutrients in soils under different methods of treatment. (A) N. Y. Cornell.

Chemical analysis of soils in relation to availability of constituents. Ind.

SOIL MOISTURE

General.

A study of the moisture relations of California soils covering the moisture equivalent, hygroscopic coefficient, and related factors. Calif.

Tank experiments on soil moisture. Utah.

Fundamental soil moisture constants. (A) Utah.

Soil moisture problems. Wash.

Movement and Losses.

- The effect of the size of container and such external physical factors as temperature and relative humidity upon the rise and rate of rise of capillary water through soil columns. Calif.
- Movement of water in soils. Minn.
- Movement of water in soils. (A) Minn.
- Soil investigations of moisture movements and alkali accumulations. (P) Wyo.
- Study of water absorption, run-off, percolation, evaporation, capillary water movement, and soil erosion under field conditions. (A) Mo.
- Evaporation from a free water surface and the study of the evaporation loss from moist soils. Colo.
- The paper mulch.--A study of the effect of covering the soil with a layer of paper. Colo.

Miscellaneous.

- Relation of soil moisture to structural development and yield in small grains. (A) Colo.
- Soil moisture and root development studies. Ariz.
- Cooperative soil studies. (b) Cooperative investigations of avoidance and correction of shallow water table. Oreg.
- Tillage and soil moisture studies.--Systematic soil moisture studies under humid, dry farming, and irrigated conditions to determine (1) value of (a) different tillage treatments, (b) fertilizers, and (c) manure in increasing the efficiency of moisture made available; (2) determination of critical moisture points for different soils; and (3) water requirement studies. Oreg.

SOIL COLLOIDS

- Colloidal behavior of soil and soil fertility. (P) N. J.
- An investigation of the character of the colloids in Missouri clay soils. (A) Mo.
- Investigation of the properties of colloidal material in Missouri soils. Mo.
- A general study of soil colloids and methods of determining soil moisture. (A) Mich.
- The measurement and significance of size frequency and distribution in soils. (A) Ohio.

UNPRODUCTIVE SOILS

- Study of infertile soils. Mont.
- Unproductive muck: Its causes and correction. N. Y. Cornell.
- "Worn out" nursery soils. N. Y. State.
- An investigation of methods of improving heavy clay soils. (P) Mo.
- Soil correction trials. (2) Crops, fertilizers, and cultural treatment for "black sticky land". Oreg.
- Cause of unproductiveness of recently-cleared coniferous timber soils, relation of toxicity thereto, and corrective measures. (A) Idaho.
- Determination of the cause of poor crop growth due to liming sandy soils. Fla.
- Pot experiments in soil fertility. Failure of oats on a certain Brookston silty-clay loam soil in Adams County. Ind.
- Old soil experiment.--(1) To compare yields and quality of carnations and roses grown in new and used soil, and (2) to find an effective means of rejuvenating used greenhouse soil. Ill.

IMPERVIOUS SOILS

- A study of impermeability in certain irrigated soils. (A) N. Mex.
- A study of the effect of lime and organic matter on the impervious Kirkland upland soil. (A) Okla.
- Drainage and improvement of wet lands. (4) Methods of improving permeability in soils of high colloidal content. Oreg.

PEAT AND MUCK

- Peat soils. Minn.
- The peat soils of Idaho. Idaho.
- Subsiding and compacting of peat soils. Calif.
- A study of depth of breaking and methods of culture in relation to crop stand and yields on peat soil. N. C.
- Field and laboratory investigations in muck soils. Mich.

- A study of muck soils with reference to factors which limit crop production. N. C.
- Experiments on muskeg soils. Minn.
- A study of the relationship between soil conditions and the natural flora of upland bogs (Savannah) in North Carolina. N. C.
- Microbiology of upland bogs (Savannah) soils of North Carolina with special reference to the relation between microorganisms and the drainage conditions. N. C.
- A study of upland soil.--Peat as a fertilizer.--To compare the raw peat with stable manure as an organic fertilizer. Minn.

MISCELLANEOUS SOIL TYPES

- Sandy soils. Minn.
- Soils of the low-lime area. Minn.
- Soils of the red drift. Minn.
- Studies of the tight clay layer in the soils of the level prairies of Missouri. Mo.
- A study of the seed bed in heavy clay soils. N. Dak.
- Push soil investigations. Iowa.
- Study of "tight clay" subsoils. (Laboratory and greenhouse study of "tight clay" subsoil). Ill.
- Physical studies of rice lands. Calif.
- Pecan soils in Texas. Tex.
- Vineyard investigations. Investigation of vineyard soils. Iowa.

SOIL BIOLOGY

General.

- Soil bacteriological investigations.--The effect of commercial fertilizers on bacterial activities. Iowa.
- Bacteriological effect of green manures. (A) Miss.
- Soil flora studies. N. Y. State.
- Soil molds. Iowa.

General. (Cont.)

- Soil bacteriological changes due to different soil treatment. Del.
- Soil bacteriological investigations.--Bacterial activities and crop production. Iowa.
- Soil bacteriological investigations.--Treatment of soils as affecting bacteria. Iowa.
- The soil solution and its role in the life of microorganisms. (A) Mich.
- Effects of different soil treatments, long continued, upon bacterial activity in the soil. Mo.
- Reciprocal influences of plant and soil microorganisms. (P) N. J.
- Microbiological study of certain Oregon soils having an acid reaction. (A) Oreg.
- Some factors influencing bacterial activities of the soil. (A) Utah.

Methods.

- Soil bacteriological investigations. Methods. Iowa.
- Inoculation studies. W. Va.
- Comparison of the bacterial content of various soil types by the direct method. N. Y. State.
- Isolation and study of the nitrifying bacteria and contaminating forms, with special reference to use of dyes as a means of isolating the nitrifying organisms. (A) Idaho.

Azotobacter.

- Influence of the absolute reaction of the soil upon the growth and activity of Azotobacter in soils. (A) Kans.
- Energy relations of Azotobacter. (A) Colo.
- Nitrogen fixed by Azotobacter per gram of carbon consumed. N. Y. Cornell.
- Azofication: Effect of reaction upon the growth of Azotobacter. Pa.

Legume Bacteria.

- The inoculating value of small quantities of manure in connection with the growing of a legume and nonlegume green manure crop. N. J.
- Studies on the longevity of B. radicicola in the soil. Mo.

Legume Bacteria. (Cont.)

Soil bacteriological investigations.--The value of commercial cultures for the inoculation of legumes. Iowa.

Investigation of bacterized fertilizers; inoculants, etc.--To secure reliable information concerning the value of the various forms of bacterial preparation which are being used in the State. Ill.

Miscellaneous.

Soil sterilization for seed beds and greenhouses.--Methods. Colo.

The sources of carbon dioxide in fallow and in cropped land and its relation to soil changes and plant growth, extended to include changes in soil after crops grown have been plowed under. (A) Colo.

Soil bacteriological investigations.--Sulfofication in soils. Iowa.

SOIL NITROGEN

Balance.

A study of the cumulative effect of cropping on the chemical composition of the soil solution and on the nitrogen equilibrium of the soil. Calif.

Soil bin investigations. (1) To determine the effect upon the maintenance of soil nitrogen for crop production of the following factors: (a) Kind and proportion of legumes in the rotation, (b) method of handling crop residues, (c) activity of non-symbiotic nitrogen-fixing organisms, (d) leaching brought about by natural rainfall. (2) To determine the losses of mineral elements in drainage water in the different cropping systems employed. (3) To determine the effect of different methods of handling nonlegume crop residues upon crop yields, and soil content of organic matter and nitrogen. Ill.

The influence of legumes and free-living organisms on the growth of plants and on the nitrogen balance in Kansas soils.--A study of the nitrogen fixed by leguminous plants and by free fixation in crop rotations. Kans.

Experiments to determine the retentive powers of Aroostook potato soils for mineral nitrogen. Me.

An investigation of the accumulation or depletion of nitrogen and carbon in soils under different systems of soil treatment and management. (P). Mo.

Balance. (Cont.)

To measure the nitrogen balance in soil under timothy and under alfalfa grown continuously and under certain crop rotations. N. Y. Cornell.

A study of the soil nitrogen of a peach orchard. N. Y. Cornell.

A comparative study of the nitrogen economy of the soil. (A) Tenn.

Laboratory study on the maintenance of nitrogen and organic matter in the manure and crop rotation experiments. Ky.

The quantities, forms, and sources of nitrogen and sulfur contained in the rainfall at Ithaca, N. Y. N. Y. Cornell.

Availability.

An attempt to determine the value of nitrogen in the unhumified soil organic matter of the gypsum soils and allied desert soils of Las Vegas Valley of southern Nevada. (P) Nev.

Nitrogen availability studies.--Cylinder experiments. N. J.

Nitrogen availability studies.--Field plats 1A to 20B. N. J.

Maintenance of available nitrogen by different systems of fertilization. N. Y. Cornell.

Legume cover crops and available nitrogen in Hood River Valley orchard soils. Oreg.

Nitrates.

Nitrate investigations. Mont.

Miscellaneous tests.--Nitrate and moisture studies. Utah.

Studies of the presence, character, and possible source of nitrates in the waters and soils of Arizona as related to leguminous vegetation. (A) Ariz.

The control of excessive soil nitrates in the Arkansas Valley. (P) Colo.

A study of the nitrification and denitrification processes in the soil as affected specifically by cane culture, with special reference to the effects upon denitrification of the large amounts of cane trash incorporated in the soil, especially under conditions of excessive moisture. (A & P) La.

Nitrate production in a soil as affected by the crop and cultivation. Mo.

Relation of weather, soil condition, and cultural practices to nitrification in Nebraska soils. (P) Nebr.

Nitrates. (Cont.)

- The effect of timothy on the disappearance of nitrates from the soil. N. Y. Cornell.
- The effect of the roots of different crops on the nitrate content of the soil. N. Y. Cornell.
- Accumulation of nitrates in soil containing plant residues. N. Y. Cornell.
- The relation of living plants and plant residues to nitrate accumulation in soil. N. Y. Cornell.
- Effect of different cover crops or green manures when plowed under on the formation of nitrates in soils. N. Y. Cornell.

Fixation.

- Determination of fixation of nitrogen by nonsymbiotic bacteria. Ky.
- Study of nitrogen fixation in the presence of or as a result of growth of legumes v. nonlegumes under certain defined agronomic conditions. (A) Mass.
- Nitrogen fixed by Azotobacter per gram of carbon consumed. N. Y. Cornell.

SOIL ACIDITY

Chemistry.

- Soil acidity investigations. Iowa.
- A study of the nature and intensity of soil acidity. W. Va.
- The influence of lime on plant growth and the composition of the soil solution, and studies on the nature of soil acidity. (A) Ala.
- Soil acidity investigation and analysis of materials used in connection with the permanent rotation and fertility experiment at Aroostock Farm. Me.
- Study of physical-chemical aspects of soil acidity.--
Investigation of (a) the relationship of absorption to the production of soil acidity, (b) the effect of soil acidity on the osmotic and other physical-chemical properties of soils. (A) Mich.

Chemistry. (Cont.)

- Chemical investigation of acid soils. (1) Determination of the sulfur content of Willamette Valley soils and of the amount of sulfur brought to them annually by the rainfall. Oreg.
- Chemical investigation of acid soils. (2) A study of soil reaction in relation to the growth of legumes. Oreg.
- Phenomena accompanying different degrees of soil acidity.
(1) Aluminum toxicity. (2) Chlorosis. (A) R. I.
- A fundamental study of the mechanism of buffer action in soils. (A & P) Del.
- Hydrogen-ion concentration of soils. Minn.
- Hydrogen-ion concentration in soils. (A) Del.
- The soil acidity relations of the soil, higher plants, and bacteria. (A) Wis.

Treatment.

- Soil acidity and liming. Nebr.
- Soil acidity tests and lime trials. (b) (1) Optimum and critical reaction for legume nutrition on certain acid soils. (2) Effect of limestone on soil acidity and plant nutrition. (3) Replaceable bases in Oregon soils. (4) Reaction of some western Oregon soil horizons. (5) Effect of hydrogen-ion concentration on certain plants and bacteria. (6) Reactive calcium in certain Oregon soils and optimum concentration for alfalfa. Oreg.
- Soil acidity tests and lime trials. (a) (1) An acidity survey of soil types by counties. (2) Lime trials - different rates and forms - six leading acid soil types in western Oregon. (3) Relation of limestone to acidity and soil structure. (4) Relation of limestone to type of crop. Oreg.
- Soil acidity studies. Effects of superphosphate (acid phosphate), raw rock phosphate, limestone, organic matter, and other soil treatments upon soil acidity. Ind.
- The behavior of limestone and phosphates in relation to soil acidity, including H-ion concentration studies. Ky.
- Soil acidity and the distribution of calcium and magnesium in the horizons of limed and unlimed soils. Ill.

ALKALI SOILS

Occurrence and Nature.

Slick spots in soils, their nature and reclamation. (A) Idaho.

A study of the chemical and physical phenomena of the so-called "slick spots", impermeable areas in the gypsum soils and allied soils of the Moapa and Las Vegas Valleys of southern Nevada. (P) Nev.

The natural occurrence of alkali in soil under cultivation. (A) Wyo.

A study of the alkali, soil, and water factors in the reclamation of water-logged lands in the Salt River Valley. Ariz.

Soil investigations of moisture movements and alkali accumulations. (P) Wyo.

Crop Tolerance.

A study of the chemical, physical, and physiological effects of salts on soils and crops and of methods of reclaiming alkali lands. Calif.

Tolerance of crops for alkali. A study of chemical aids to reclamation of alkali soil by drainage. (A) Idaho.

Experiments on the relative tolerance of certain crops to alkalinity and high concentration of salts and a further study of methods of testing alkali soils, with special reference to the correlation between chemical tests and the toxicity to plants. Calif.

Correction.

Alkali reclamation on the Yuma Valley Experiment Substation. Ariz.

Leaching of drained alkali lands in Imperial Valley. Calif.

Reclamation of alkali soils. Study of the physical effects produced on soils by soluble salts. (P) Calif.

Studies on the action of soil alkali. (A) Utah.

Soil correction trials. (1) Crops, fertilizers, and cultural treatment for "white land". Oreg.

SOIL ORGANIC MATTER

Maintenance.

Maintenance of organic matter. (1) Organic matter and humus contents in Oregon soil types. (2) Effects of irrigation, rotation, and manure on organic matter supply. (3) Effect of organic matter on bacterial activity and accumulation of nitrates in soils. (4) Value of straw, cover crops, and green manure in maintaining organic matter. (5) Best methods of reducing grain straw and life refuse to farm manure. Oreg.

Soil organic matter maintenance. Wash.

Maintenance of organic matter in eastern Washington soils. (A) Wash.

A study of the restoration of organic matter in soils. (P) Nebr.

Humus.

Humus investigations. (A) Iowa.

Mechanism of decomposition of soil organic matter and processes contributing to the formation of soil "humus". (A) N. J.

Humus investigations. (A) Tenn.

SOIL TILLAGE

Seed Bed Preparation.

Tillage investigations. (1) Time and method of plowing. Oreg.

Tillage experiments. (1) Different methods and time of plowing. Oreg.

Plowing and cultural tests at the Nephi Dry Farm Substation. Utah.

The influence of shallower and deeper plowing. S. Dak.

Time and method of seed bed preparation studies. Tex.

Soil investigations. (d) Effect of cultipacking upon yield of grains. Idaho.

A study of the factors which affect the tilth of soils. (P) Nebr.

Intertillage.

The effect of intertillage on crops and soils. Pa.

Time and method of intertillage experiments. Tex.

Miscellaneous.

- Effect of cultivation upon yield of corn and upon accumulation of nitrates and upon soil moisture. Ark.
- Soil moisture and nitrate investigations. Oreg.

SOIL MANAGEMENT

General.

- Soil management studies (upland). Mich.
- Comparative profits of equal investments in phosphorus, in phosphorus and potassium, and in phosphorus, potassium, and nitrogen. Ohio.
- Cow manure with straw bedding v. sawdust bedding, the latter supplemented with phosphorus, and again with potassium, compared with the cost of fertilizers to produce same sized crops. R. I.
- Crop rotation and soil management trials. Spring v. fall plowing v. no plowing. Minn.
- Effect of soil management on plant diseases. R. I.

Systems.

- Morrow plats. Comparative value of continuous culture and crop rotations with and without soil treatment. Ill.
- Tests of certain methods of soil management applied to Ontario loam and Volusia silt loam at Churchville, Alfred, and Virgil, N. Y. N. Y. Cornell.
- Experiments to determine the best systems of soil management for the most important soil types in Missouri. Mo.
- Systems of soil managements and treatment for Illinois soils. Ill.
- The rate of accumulation and cost of nitrogen and carbon in soils under different systems of green manuring and cropping. Mo.
- The influence of different methods of farming on the phosphorus content of the soil and conditions influencing the availability of the phosphorus to crops. Wis.
- The comparative effects of grain and livestock systems of farming on soil productivity. Ill.
- A comparison of grain farming with stock farming as regards the maintenance of soil fertility. Ind.
- Dry land agriculture.--A series of crop rotation and tillage experiments. Green manure and soil moisture investigations. Kans.

Irrigated Soils.

Management of irrigated soils.

Wash.

The utilization of irrigation water and its influence on soil composition.

Wash.

Sandy Soils.

Production of shelter belts on light sandy soil and their utilization to prevent sand drifting.

N. Dak.

The economic cropping of the light and soil to maintain soil fertility and prevent wind erosion.

N. Dak.

Management of sandy soils.

Wis.

Greenhouse Soils.

Soils and fertility work in the greenhouse.

Ohio.

Methods of sterilization of greenhouse soils.

Ohio.

Treatment of greenhouse soil in solid beds. Drainage.

Md.

Treatment of greenhouse soil in solid beds. Freezing.

Md.

Treatment of greenhouse soil in solid beds. Drying.

Md.

Miscellaneous.

Management of marsh soils.

Wis.

Management of heavy clay.

Wis.

What soil characters are factors in determining the agronomic value or utilization of land. (P) Conn. State.

1/
SOIL FERTILITY

General.

The effect on soil productivity of continuous cropping without manures when organic matter of the soil is maintained by seeded crops. N. Y. Cornell.

The influence of fertilizers on the soil where the vegetation is undisturbed as compared with their influence under a 5-year rotation of corn, oats (2 years) wheat and timothy. N. J.

1/ See also Field Crops--Rotations, p. 218.

General. (Cont.)

Soil investigations. (g) Fertility problem on peat as relating to grain production.	Idaho.
A study of the underlying factors influencing soil fertility as evidenced by the chemical composition of the soil solution.	Calif.
Permanent maintenance of soil fertility without manure.	R. I.
Methods of maintaining soil fertility.	N. J.
Fertility plats.	W. Va.
Soil fertility investigations in western Washington.	Wash.
Soil fertility trials.	S. Dak.
Effect of different methods and classes of farming on soil fertility.	Wis.
Fertility investigations.	Okla.
Soil fertility.	Okla.
Studies in soil fertility. Sterility studies.	Minn.
Studies in soil fertility. Subfields at outlying points.	Minn.
Fertility study.	Minn.
Cooperative fertilizer experiments.	Ark.
Soil investigations. (b) The value of lime, gypsum, and phosphate as fertilizers.	Idaho.
Renewed fertilizer experiments.--Effect of bluegrass pasture over a period of years on plats formerly used for fertilizer experiments in comparison with results obtained before this period when potash salts produced large increases in yield of crops.	Ky.
Fertilizer experiments.--Sulfur fertilizers and phosphate fertilizers on different types of soils.	Minn.
Cooperative fertilizer experiments.	Nebr.
Fertilizer ratio experiments (triangle experiment).	N. J.
Soil fertility and management. (2) Tests of commercial fertilizers with and without manure.	Oreg.
Fertility and rotation experiments. (5) Pot experiments with commercial fertilizers, the percolation water from the pots being analyzed.	Oreg.

General. (Cont.)

Fertilizers. The results farmers may expect from the long-continued use of the more common commercial fertilizers, particularly superphosphate (acid phosphate).	Ohio.
The use of standard carriers of nitrogen, phosphorus, and potassium singly, in combinations of two elements, and the three together in different amounts and proportions, in continuous culture and in various crop rotations in fourteen counties in the State.	Ohio.
Compost v. superphosphate (acid phosphate) in a 3-year rotation.	La.
Comparisons of different carriers of nitrogen, phosphorus, and potassium.	Ohio.
Commercial fertilizers v. stable manures.	Ohio.
Fertilizer experiments.	Pa.
Fertilizers v. manure for fertility maintenance.	R. I.
Fertilizer v. manure.	R. I.
Fertilizer as a supplement to manure, compost, green manure, and peat.	R. I.
Comparison of different carriers of nitrogen, phosphorus, and potassium.	R. I.
Manure v. green manure, compost, fertilizer, and peat.	R. I.
Fertilizer formula, materials, and rate of application.	S. C.
Field fertilizer experiments.	Fla.
Fertilizer experiments on field plats.	N. Y. State.
A study of upland soil. Commercial fertilizer project.	Minn.
Fertilizer experiments.	Oreg.

Fertilizer Requirements.

A study of varietal adaptations and fertilizer requirements on Red River Valley soils. The effect of varied crop sequence.	Minn.
A study of varietal adaptations and fertilizer requirements on Red River Valley soils. The effect of commercial fertilizers on growth.	Minn.
Plant food requirements on typical Arkansas soils.	Ark.

Fertilizer Requirements. (Cont.)

- Field and pot tests to determine the fertilizer requirements of Dekalb soil. Pa.
- Field test on Volusia soil.--To determine the lime and fertilizer requirements on the Volusia soils. Pa.
- Field study of the fertilizer requirements of the important soil types. Md.
- Experiments on lime and fertilizer requirements of the soils of limestone origin at the Princeton Substation. Ky.
- A study of the lime, fertilizer, and organic matter needs of Bedford silt-loam soil. Ind.
- To ascertain whether the soil type, as now distinguished, is an index to the fertilizer needs of a soil. N. Y. Cornell.
- Magnesia deficiency of some representative sandy soil types of North Carolina. (A) N. C.

Use of Concentrated Fertilizers.

- Concentrated fertilizer tests. Ind.
- Field study of concentrated fertilizer mixtures. Md.
- A study of the influence of concentrated fertilizers on germination and growth. Field experiments. N. J.
- Concentrated fertilizer experiments. S. C.

Rotation Fertility Studies.

- The influence of crop rotations upon the maintenance of soil fertility. (A) S. Dak.
- Crop rotations.--To study rotations for maintaining soil fertility. Alaska.
- Soil investigations. (c) Rotation experiment. Idaho.
- Crop rotation and soil management trials. Seven-year rotations. Minn.
- Crop rotation and soil management trials. Five-year rotations. Minn.
- Crop rotation and soil management trials. Three-year rotations. Minn.
- Crop rotation experiments. An eight-year rotation without manure including four years of cereal crop and four year's alfalfa. Minn.

Rotation Fertility Studies. (Cont.)

- Soil fertility and management. Four-year rotation with peas and oats, timothy and clover. Oreg.
- Small grain fertility rotation. Okla.
- Fertility rotations. (1) Eighteen rotations on Willamette silty clay loam, initiated 1909 and 1915. Oreg.
- Fertility rotations. (3) Cooperative irrigation rotations, Hermiston and Burns, initiated 1918. Oreg.
- Soil fertility experiments.--To determine the effect on soil fertility of various rotations, summer legumes with and without corn, and winter legumes on limed and unlimed land. Miss.
- Crop rotation and soil management trials. Continuous cropping of wheat alone and wheat with red clover. Minn.
- Crop rotation and soil management trials. The use of sweet clover as a soil improvement crop. Minn.
- Studies in soil fertility. Continuous cropping without clover or manure. Minn.
- Fertilizers and manures applied to different crops in the rotation. Ohio.
- Fertility and rotation experiments. (3) Commercial fertilizers applied to rotations. Oreg.
- Fertility investigations. The effect of various amounts of fertilizers applied at different times in the rotation on soil conditions and plant growth. Iowa.
- Fertility investigations. Fertilizer effects on soil conditions and crop growth under a two-year rotation. Iowa.
- Fertility investigations. Fertilizer effects on soil conditions and crop growth under continuous corn. Iowa.
- Fertility investigations. Fertilizer effects on soil conditions and crop growth under a five-year rotation. Iowa.
- Fertility investigations. Fertilizer effects on soil conditions and crop growth under a three-year rotation. Iowa.
- Fertility investigations. Fertilizer effects on soil conditions and crop growth under a four-year rotation. Iowa.
- A study of the place at which fertilizers may be applied to best advantage in a given rotation, whether in small quantities frequently or in large quantities less frequently. Va.

Rotation Fertility Studies. (Cont.)

Tests of various mixtures of fertilizer salts on different courses in a crop rotation as means of ascertaining soil productivity. N. Y. Cornell.

Fertilizer rotation experiment at Albertville, Jackson, Prattville, Cussetta, Sylacauga, Hackleburg, and Brewton. Ala.

To measure the nitrogen balance in soil under timothy and under alfalfa grown continuously and under certain crop rotations. N. Y. Cornell.

Soil and crop studies, including rotation, fertilizer and cultural practice experiments. Fla.

Manuring Experiments.

Fertility and rotation experiments. (2) Comparative value of barnyard and green manures. Oreg.

Studies on factors affecting results from different methods of application of manure. Wis.

Fertility tests at the Nephi Dry Farm Substation. (a) Barnyard manure test. (b) Green manure. Utah.

Green manure v. stable manure. R. I.

Fertility Experiment Fields.

The effect of long-continued cropping and fertilization upon the chemical and biological properties of the soil of the Morrow and Davenport plats. Ill.

Field plat soil fertility studies. The Francisco demonstration experiment field. Ind.

Field plat soil fertility studies. The Huntington experiment field. Ind.

Field plat soil fertility studies. The Pinney-Purdue experiment field. Ind.

Field plat soil fertility studies. The Jennings County experiment field. Ind.

Field plat soil fertility studies. The Davis Forestry Farm experiment field. Ind.

Field plat soil fertility studies. The sand soil experiment field. Ind.

Field plat soil fertility studies. The Purdue-Vincennes field. Ind.

Fertility Experiment Fields. (Cont.)

Field plat soil fertility studies. The Pinney-Purdue muck soil experiment field.	Ind.
Complete fertility test of Crosby silt loam soil.	Ind.
Field plat soil fertility studies. The Worthington experiment field.	Ind.
Field plat soil fertility studies. The Scotsburg experiment field.	Ind.
Field plat soil fertility studies. Crop rotation and fertilization plats - Purdue Farm.	Ind.
Greenville soil experiment field.	Ky.
Lone Oak soil experiment field.	Ky.
Berea soil experiment field.	Ky.
Lexington soil experiment field.	Ky.
Mayfield soil experiment field.	Ky.
Fariston soil experiment field.	Ky.
Campbellsville soil experiment field.	Ky.
Hopkinsville experiment field.	Ky.

Nitrogen Fertility Experiments.

The utilization of nitrogen in the presence of varying amount of phosphorus and potash.	N. J.
Nitrate, sulfate, cyanamid, and manure for top-dressing.	R. I.
Effect of nitrate of soda fertilizer on various field crops on Indiana soils.	Ind.
A study of the chemical and physical effects of nitrate of soda on citrus soils.	Calif.
Influence of time and application of nitrate of soda on (a) yield, (b) nitrogen content of grain (greenhouse and field row work).	Ohio.

Phosphorus Fertility Experiments.

Fertility investigations. The effect of various amounts of rock phosphate with green manures and farm manures on soil condition and crop growth.	Iowa.
Effect of lime on the availability of phosphorus in different carriers.	R. I.

Long-time Fertility Experiments.

The chemical, physical, and biological properties of fertility plat soils, as affected by the long-continued use of manures, lime, and fertilizers.

Ohio.

An investigation of the changes in the crop-producing power and the physioco-chemico-biological properties of soils long under cultivation.

Mich.

Miscellaneous.

Degree of fertility after withholding individually the carriers of fertilizer nutrients and lime.

R. I.

Mixing various fertilizer materials.

S. C.

Plat experiments with sodium fluosilicate.

Tenn.

SOIL SURVEYS

Soil survey of the King City area.

Calif.

Soil survey of the Bishop area.

Calif.

Soil survey of the Salinas area.

Calif.

Soil survey of the Chico area.

Calif.

Soil survey of Oroville area.

Calif.

Soil map of California.

Calif.

Soil survey of the Placerville area.

Calif.

Soil survey of the Santa Ynez area.

Calif.

Soil survey of the Clear Lake area.

Calif.

Soil survey of the Auburn area.

Calif.

Soil survey of the Hollister area.

Calif.

Soil survey of the Gilroy area.

Calif.

Soil survey in the Arkansas Valley.

Colo.

Chemical studies of soil survey samples.

Idaho.

Soil survey. (a) A detailed survey of a designated area each season, as funds permit.

Idaho.

Soil survey analysis.

Ill.

State soil survey (mapping).	Ill.
Soil survey of Indiana.	Ind.
Soil survey. Mapping of soil, field experiments, greenhouse and laboratory investigations.	Iowa.
Resurvey of soils of certain counties.	Md.
Analysis of important soil types.	Md.
Systematic study of Michigan's soils.	Mich.
Soil survey.	Minn.
Land classification.	Minn.
The determination and mapping of Missouri soil types.	Mo.
Soil survey studies.	Mont.
Detailed soil survey (soil survey and soil maps).	Mont.
Soil reconnaissance of Montana.	Mont.
The classification and mapping of North Carolina soils as a basis for soil fertility investigations and crop adaptation.	N. C.
Study of the development and classification of Durham series of soils.	N. C.
The chemical analysis of North Dakota soils (soil survey).	N. Dak.
Cooperative soil studies. (a) Cooperative soil survey with U. S. Bureau of Chemistry and Soils.	Oreg.
Soil and feasibility survey. Warm Springs project. Soil survey Columbia County.	Oreg.
Soil survey of Willamette Valley.	Oreg.
Feasibility surveys. (Reclamation projects.)	Oreg.
Color classification of soil.	S. Dak.
Soil survey.	Tex.
Soil survey.	Utah.
Soil survey.	Va.

NITROGENOUS FERTILIZERS

- Nitrogen fertilizer materials. S. C.
- Forms of nitrogen. Ark.
- Nitrogen materials tests. Ind.
- Nitrogen material experiment with cotton and corn. S. C.
- A comparison of the efficiency of 19 sources of nitrogen when each are used as the sole source of nitrogen and in certain combinations of a complete fertilizer for corn and cotton on Cecil sandy loam. N. C.
- A comparison of the efficiency of 8 sources of nitrogen when each is used as the sole source of nitrogen in a complete fertilizer for cotton and corn. N. C.
- A cooperative experiment on the relative value of different nitrogenous fertilizers and their influence on soil reaction. (P) Ala.
- Secondary effects of different nitrogenous fertilizers on the soil and a study of the preparation of mixed fertilizers. (P) Ala.
- Calcium cyanamid v. nitrate of soda or ammonium sulfate as fertilizer. Ala.
- A study of relative efficiency of "based" and "unbased" sulfate of ammonia as carriers of nitrogen. Mass.
- Causes of toxicity of ammonium sulfate and other ammonium compounds. (A) N. J.
- The larger amount of lime needed with sulfate of ammonia than with nitrate of soda. R. I.
- Nitrate of soda and sulfate of ammonia with more and less lime. R. I.
- Nitrate, blood, hoof meal, horn meal, star fish, hen manure, tankage, and acid fish in sunken pots with more and less lime, with and without cover crop. R. I.
- Pot experiments in soil fertility. The availability of nitrogen in muck as compared with other carriers of nitrogen as fertilizer. Ind.

SULFUR

- Sulfur in plants and soils and its significance to permanent soil fertility; also determination of the best sulfur compound for correcting sulfur deficiency in soil. (A) Ky.

- Function of sulfur as a plant food. (A) Wash.
- Sulfur as a fertilizer.--To determine the value of sulfur as a fertilizer on arid and semiarid soils and the forms and amounts best adapted to these soils. Wyo.
- Influence of form and amount of sulfur on growth and development of seed on sulfur-loving plants. Wis.
- The value of sulfur to Texas soils and crops. Tex.
- Functions of sulfur in relation to soil.--(1) To determine the ultimate effect of long-continued use of sulfur on soil acidity and fertility, used since 1912 and 1915. (2) To study the losses and gains in soil sulfur from rainfall and drainage. (3) To determine the value of sulfur on various crops and on different soil types. (4) To determine the value of sulfur and gypsum, aluminum sulfate used in connection with sweet clover in restoring the structure of drained alkali land. (5) To determine the value of sulfur and manure in liberating unavailable phosphates. (6) To determine the value of sulfur and sulfate used in connection with lime in humid sections. (7) To determine the economic forms, rates, and combinations of use of sulfur on normal soil and on alkali soil. Oreg.
- Effect of sulfur carriers on soil productivity. Ill.
- Chemical investigation of acid soils. (1) Determination of the sulfur content of Willamette Valley soils and of the amount of sulfur brought to them annually by the rainfall. Oreg.
- Relation of sulfur to plant nutrition and soil fertility. Ill.
- Effect of sulfur and sulfates on soils and plant growth. Ohio.
- The quantities, forms, and sources of nitrogen and sulfur contained in the rainfall at Ithaca, N. Y. N. Y. Cornell.
- Soil amendments. Use of sulfur, lime, gypsum, on leguminous crops. Idaho.

POTASH

- The effect of potassium carriers on soil productivity. Ill.
- Rôle of potassium in crop production. (A & P) Ark.
- A study of the availability of soil potash with the object of developing a system of diagnosis for the soils of the State. (A) Mass.
- Pot experiments in soil fertility. Availability of potash. Ind.

Effect of potassium and the other ingredients of muriate, sulfate, kainit, and magnesium-potassium sulfate. R. I.

General fertility problems.--Effect of continued applications of potash salts. Md.

Relation of the use of manure to potash fertilization. Wis.

PHOSPHORUS

Forms.

A field test of different carriers of phosphorus. Pa.

A comparative study of different phosphates used as fertilizers. Ind.

Sources of phosphorus. Ark.

Rock phosphate, superphosphate (acid phosphate), and basic slag compared as sources of phosphoric acid for corn, wheat, and red clover in rotation on Toxaway loam. N. C.

Rock phosphate v. superphosphate (acid phosphate) as a source of phosphoric acid for corn, oats, wheat, and soy beans in rotation. (1) When used with normal amounts of nitrogen and potash. (2) When used with stable manure. (3) When used with potash and legumes turned under on Toxaway loam. N. C.

A comparison of rock phosphate and superphosphate (acid phosphate) as sources of phosphoric acid for corn and crimson clover (turned under) in a 1-year rotation of Toxaway loam. N. C.

Comparison of rock phosphate with superphosphate (acid phosphate) in soil bin studies. Ill.

A study of upland soil.--Phosphate fertilizer experiment. Minn.

Superphosphate (acid phosphate), floats, double or triple superphosphate, Thomas slag, and bone, with more and less lime. R. I.

Comparison of superphosphate (acid phosphate) v. raw phosphate. Ala.

Comparison of bone meal, basic slag, superphosphate (acid phosphate), and raw rock phosphate as fertilizers. Ind.

The determination of the relative values of different forms of phosphorus upon the soils at Columbia. Mo.

High analysis phosphate (40 per cent P_2O_5) v. 16 per cent superphosphate (acid phosphate). Ohio.

Forms. (Cont.)

- Agricultural value of blast furnace slag. (P) Pa.
- Comparison of various phosphates. Tenn.
- Effect of action of phosphorus in different forms on normal South Dakota soils and the influence of sulfur pure and as calcium sulfate on the availability of phosphorus in normal South Dakota soils, as indicated by the growth of wheat and by tumbler cultures. (A) S. Dak.
- Composting raw phosphate rock and sulfur with different soils. Tex.
- Effect of sulfur on availability of phosphorus in bat guanos. Porto Rico.
- An investigation of the influence of composting commercial organic ammoniates, ground raw phosphates, and rich soil on the availability of the phosphorus content of the raw phosphate and on the loss of nitrogen from organic ammoniates. (P) Ga.
- Rock phosphate investigations. Iowa.

Uses.

- A comparison of rock phosphate and superphosphate (acid phosphate) when applied alone to corn, wheat, and red clover in rotation on Cecil clay loam, the superphosphate (acid phosphate) being applied in normal amounts, and the rock phosphate in normal, two, three, four, six, and eight times the normal amounts. N. C.
- A study of the factors governing the availability of rock phosphate in acid soils. (A) Ark.
- The fineness of subdivision of rock phosphate as a factor in its effectiveness in crop production. Ill.
- The response of Illinois soils to phosphorus. Ill.
- The relative efficiency of several large size initial applications of raw rock phosphate. Ind.
- Pot experiments in soil fertility. Availability of phosphates. Ind.
- Availability and utilization of phosphorus compounds for crop use.--
The red hill soils of Oregon especially are under study as to (1) what practices will make insoluble soil phosphates available; (2) what forms of phosphate fertilizer will give best results; (3) what practices will make insoluble phosphate fertilizers available to crop use; (4) what differences there may be in feeding power of crops for rather insoluble phosphates; (5) what reaction range is favorable on red hill soils for legumes and for needed soluble phosphates; (6) fineness, etc., relation to availability. Oreg.

Uses. (Cont.)

- Fixation of phosphoric acid in soils. Va.
- Studies in soil fertility. Phosphate fertilizer tests. Minn.
- Effect of lime on the availability of the phosphorus of superphosphate (acid phosphate). N. Y. Cornell.
- Relative value of different amounts of phosphoric acid on Dekalb soils. Pa.
- Phosphate fertilizer investigations. The use of superphosphate (acid phosphate) and rock phosphate, alone and in combination with manure, and the use of lime with all the above combinations on a 4-year rotation of corn, wheat, oats, and clover. Minn.

NATURAL MANURES

Green Manures.

- Comparative growth of green manure crops after the middle of July. R. I.
- Studies on green manure (cover) crop. Del.
- Winter green manure crops on the Yuma Mesa. Ariz.
- Green manures.--To investigate crops suitable for green manuring. Alaska.
- Green manure experiments. N. Y. Cornell.
- Effect of different cover crops or green manures when plowed under on the formation of nitrates in soils. N. Y. Cornell.
- Soil investigations with legumes. Iowa.
- The fertility value of legumes at various stages of growth. Ill.
- The fertility value of legumes. Ill.
- Soil investigations. (a) Use of legumes in building up soil fertility. Idaho.
- Winter legumes as cover crops and green manure, preceding human food crops. R. I.
- The influence of legumes as compared with nonlegumes in maintaining soil fertility. N. J.
- Cover crops efficiency test. Guam.

Green Manures. (Cont.)

- Study of the effectiveness of different legumes in the maintenance of productiveness. Ky.
- Soil reaction and legumes, a comparison of the growth of the more common legumes under different soil reaction, their ability to fix nitrogen at these reactions, and the quantity of limestone needed to maintain the soil at definite degrees of acidity or alkalinity. Ohio.
- Leguminous forage crops. Porto Rico.
- Legumes.--To test various annual legumes such as the crimson clover, vetches, cowpeas, and soy beans with special reference to their value as soil improvement crops. N. Mex.
- Buckwheat as a green manure crop. R. I.
- Kudzu as a (1) pasture, (2) soil-improving, and (3) soil-holding crop. Tenn.
- Factors influencing the use of sweet clover in soil fertility maintenance. Ill.
- Sweet clover for green manure, its value and best method for utilization. Ohio.
- Winter vetch as a cover and green manure crop. R. I.
- Value of vetch turned under at different dates in comparison with nitrate of soda. (P) Ala.
- Alfalfa as a cover and green manure crop. R. I.
- Variable cash crops preceded by sweet clover, alfalfa, red clover, and by vetch, to determine the hardiness and value of the legumes as green manures and nitrogen fixers. R. I.
- Italian rye grass as green manure. R. I.
- Rye, Japanese millet, and Italian rye grass as green manures for early tomatoes. R. I.
- Rape as green manure. R. I.
- Forage crops. (2) Tests of crops, species, and varieties as to value for soiling crops. Oreg.

Use of Green Manure.

Rotation experiments, primarily to discover the value of sweet clover in soil improvement.	Idaho.
Effect of summer and winter legume crops when turned under for soil improvement.	S. C.
Determination of the effect of green manures on the composition of soil. (A)	Fla.
The effect of legumes in crop rotations on soil productivity.	Ill.
Studies in soil fertility. Clover utilization.	Minn.
A study of upland soil. Utilization of the clover crop.	Minn.
General fertility problems. Effect of rye as a winter cover for early spring plowing and same for later work.	Md.
Bacteriological effect of green manures. (A)	Miss.
Green manure crops sown at the last cultivation of corn.	Va.
Effect of green manuring on the soil. (A)	Va.

Farmyard Manures.

Effect of weathering and storage upon the composition of barnyard manure.	Mo.
Use and value of manure.--(1) What is the most economical rate of use of farm manure on major field crops? (2) What is the best way to work manure into the soil? (3) Will it pay to reinforce manure with phosphates, ground limestone, or sulfur? (4) How long will manure last applied under our soil and climatic conditions? (5) What is the value of straw and of vetch and oats, green manure as compared to manure?	Oreg.
Carbon-nitrogen ratio in stable manure, especially that of dairy cattle. (P)	Vt.
Production of artificial farmyard manure from straw by fermentation.	Oreg.
Chemical changes in fermenting manures and influences of such fermentation on the solubility of crude compounds of P, K, and N, when mixed with manure.	Wis.
Tests of a special method for drying and pulverizing poultry manure as it comes from the dropping boards.	Md.

Use of Farmyard Manure.

- The use of manure in different amounts per acre and with different supplements. Ohio.
- A study of upland soil.--Rate of stable manure applications. Minn.
- Relation of the use of manure to potash fertilization. Wis.
- Studies in soil fertility.--Rate of manuring. Minn.
- Experiments in the use of barnyard manure. Kans.
- Quantities and soil improvement value of manure that may be produced in livestock systems of farming. Ill.

Crop Residues.

- Studies in the utilization of crop residues.--Effect of cornstalks, wheat and oat straw, and clover chaff upon crop yields, and biochemical and bacteriological changes in the soil. Ill.
- Accumulation of nitrates in soil containing plant residues. N. Y. Cornell.
- The relation of living plants and plant residues to nitrate accumulation in soil. N. Y. Cornell.
- A study of the influence of heavy applications of organic matter (dry rye straw) on germination and growth - cylinder experiment. N. J.
- The effect of crop residues on soil productivity. Ill.
- A study of sorghum crop residues in soils. (P) Ariz.
- Effect of different methods of disposing of cornstalks in the field upon the fertility of the soil. Ind.
- The soil fertility value of cornstalks plowed under v. left to decay on the surface. Ind.
- A study of the fertilizing value of cornstalks on brown silt loam. Ill.
- Crop residues, including wheat straw, corn stover, soy beans and sweet clover haulm, their value for soil improvement when applied direct to the land, when made into synthetic manure, when used for feed or bedding for animals. The relation of the C/N ratio to the value of crop residues as a source of available nitrogen and for increasing soil organic matter. Ohio.
- Value of cane trash turned under or burned. La.
- A study of manurial value of bagasse; also its value as a source of industrial alcohol. (A & P) La.

LIME

General.

- Liming materials for use on Illinois soils. Ill.
- Influence of lime and magnesia on conservation of soil sulfur. (A) Tenn.
- The influence of form and derivation of magnesium oxides and carbonates upon carbonation and silication in soil. (A) Tenn.
- Single and cumulative additions of calcic and magnesian materials in lysimeters. (P) Tenn.
- Effect of liming on soil losses of basic elements, carbon dioxide, and nitrogen. (P) Tenn.
- Studies on the calcium content of soils and its relation to acidity and the response of soils to liming. Mo.
- Effect of lime on physical properties of soils. (P) Nebr.
- Effect of lime on the availability of the phosphorus of superphosphate (acid phosphate). N. Y. Cornell.
- The buffering effect of silica upon calcium and magnesium additions. (P) Tenn.
- The translocation of calcium in soil. N. Y. Cornell.
- Movement of lime in the soil. Md.
- Decomposition of calcium and magnesium carbonates in soils under field conditions, including leaching investigations. (A) Tenn.
- Studies on the movement of lime in various forms, through Hagerstown silt loam soil and through Norfolk sandy soil by means of lysimeters. Va.

Forms of Lime.

- Forms of lime.--To study the effect of various forms of lime on yield, both as to their immediate and accumulative effect. Ark.
- Relative effects of limestone and blast furnace slag on the growth of barley. N. Y. Cornell.
- Agricultural value of marl. Minn.
- Calcium v. magnesium compounds. Ohio.
- A comparison of magnesian and nonmagnesian limestone in four different 5-year rotations. N. J.

Forms of Lime. (Cont.)

- The effect of different kinds of lime on soil acidity. R. I.
- A field comparison of various forms of lime, also rate-of-liming experiments. Tenn.
- A comparison of different forms of lime. Tenn.

Liming Practice.

- Field test of the value of limestone of different degrees of fineness. Pa.
- Comparison of the relative efficiency of limestone ground to different degrees of fineness. N. Y. Cornell.
- An experiment for the purpose of determining the proper fineness of grinding of limestone. Mo.
- The effectiveness of lime and limestone on the soils of Illinois. Ill.
- The influence of lime on plant growth and the composition of the soil solution, and studies on the nature of soil acidity. (A) Ala.
- The liming of Oregon soils. (A) Oreg.
- Calcium compounds: Forms, amounts, and when best applied. Ohio.
- Rate-of-liming experiments. Tenn.
- Rate of applying lime. Va.
- Rate-of-liming experiments with (1) burnt lime and (2) ground limestone. Tenn.
- Soil amendments.--Use of sulfur, lime, gypsum on leguminous crops. Idaho.
- A study of the efficiency of small amounts of lime and a comparison of lime in quick and hydrated forms, marl, and ground limestone. Wis.
- Lime studies. The use of lime in the standard crop rotations for this region; different forms of lime compared; effects of fineness on the value of ground limestone for agricultural purposes. Va.

Lime Requirements.

- The lime requirement of Illinois soils. Ill.
- The lime requirement of Maryland soils. Md.

Lime Requirements. (Cont.)

Testing soils for their lime need.	Mo.
Soil lime requirements; nature of so-called soil acidity; methods of determining soil organic matter contents.	Vt.
Lime requirements of typical soils for leguminous crops and methods of determining available lime. (P)	Wis.
Effect of fertilizer treatments upon the lime requirement.	Md.
Relation of soil calcium and magnesium in their different chemical combinations to the lime requirement and to the hydrogen-ion concentration of the soil and the movement of these elements in limed and unlimed land.	Ill.

RESIDUAL EFFECT OF FERTILIZERS

The immediate and residuary effects of soluble salts on the physical and chemical properties of soils.	Mich.
Study of the residual effects upon the soil, and of the utilization by rotation crops, of the commercial fertilizers, manure and lime applied in the general fertilizer series. (A)	Pa.
Investigation of the value, nature, and duration of the residuary effects of vegetable matter when applied to soils of different texture.	Mich.
Study of residual effects of fertilizers.	Mass.
The residual effect of fertilizers upon yields of wheat.	Ill.
The residual effect of raw rock phosphate and superphosphate (acid phosphate) on crop production.	N. Y. Cornell.

V E T E R I N A R Y M E D I C I N E

GENERAL DISEASES

Infectious Abortion. (See also Diseases of Reproductive Organs, p. 407.)

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| Contagious abortion. | (A) | Conn. Storrs. |
| Survey of abortion in dairy cattle. | | Md. |
| Studies of abortion in cattle. | | Del. |
| Infectious bovine abortion studies. | | Tex. |
| Infectious abortion of cattle. | (A & P) | La. |
| Studies of bovine infectious abortion. | (P) | Ga. |
| Bovine infectious abortion. The control of field outbreaks of infectious abortion by means of sanitary measures. | | Ind. |
| Methods of practical control and economic effect of contagious abortion upon a dairy herd. | | Nebr. |
| A study of management as a factor in the control and elimination of contagious abortion in dairy cattle. | | W. Va. |
| Establish a system or method whereby contagious abortion may be regulated and controlled. | | Md. |
| Contagious abortion in cattle.--To determine a means of controlling bovine infectious abortion. | (A) | Mich. |
| The control of infectious abortion in cattle. | | Ill. |
| Etiology and control of infectious abortion in mares and cows. | (A & P) | Ky. |
| Investigation of cause and control of infectious abortion in swine. | | Wis. |
| Infectious abortion caused by <u>B. abortus</u> Bang. | | Oreg. |
| Infectious abortion and other diseases of the reproductive organs of cattle.--Methods of cultivation of <u>Bacillus abortus</u> . | (A) | Minn. |
| A comparative study of <u>Bacterium abortum</u> from bovine and porcine sources. | | Wis. |
| The comparative pathology of lesions in guinea pigs caused by bovine, porcine, and human strains of <u>B. abortus</u> Bang. | | Mich. |

Infectious Abortion. (Cont.)

- A study of the comparative agglutinating properties of different strains of B. abortus Bang. (P) Del.
- Controlling contagious cattle abortion by testing the herd and isolating reactors. Wis.
- Infectious abortion and other diseases of the reproductive organs of cattle.--The serological tests in infectious abortion. (A) Minn.
- Control of contagious abortion by agglutination tests. (P) Colo.
- Experiments in the eradication of Bacterium abortus infections in domestic animals. Calif.
- A study of the relation of agglutinins to the presence of Bacterium abortus in the tissues, secretions, and excretions of cattle. Calif.
- Bovine infectious abortion: Methods of eradication and control. (P) N. C.
- Infectious abortion and other diseases of the reproductive organs of cattle.--Production of artificial immunity. (A) Minn.
- Abortion disease investigations.--Studies of pathological lesions. Studies of blood tests and attempts to induce immunity. Kans.
- Bovine infectious abortion.--Immunization studies. (A) Ind.
- The efficiency of antiabortion vaccines. Ark.
- A study of immunity and the carrier problem in bovine abortion. (A) Calif.
- Infectious abortion and other diseases of the reproductive organs of cattle.--The relative importance of the generative tract as a channel of infection in bovine infectious abortion. (A) Minn.
- A study of the transmission of abortion infection in cattle and swine from immune dams to progeny. (A) Mo.
- Contagious abortion of mares and pyaemic arthritis of foals. Minn.
- Infectious abortion and other diseases of the reproductive organs of cattle.--The elimination of Bacillus abortus in milk. (A) Minn.

Diseases of Reproductive Organs. (See also Contagious Abortion, p. 405.)

Studies on sterility in cattle. Del.

Sterility in breeding cattle. Oreg.

Sterility in the bovine male. Idaho.

Pathology and bacteriology of the reproductive organs of mares and stallions and their relation to sterility and diseases of the new born. (A) Ky.

Infectious abortion and other diseases of the reproductive organs of cattle.--The pathology and bacteriology of sterility. (A) Minn.

Infectious abortion and other diseases of the reproductive organs of cattle.--Bacterial flora of the vagina and uterus. (A) Minn.

Diseases of the reproductive organs in cattle. (a) Diseases of the genital organs. (b) Diseases of the udder. (c) Diseases of the placenta and fetal membranes. (d) Diseases of aborted fetuses and new born calves. Mich.

Studies on retained placenta in cattle. Del.

Infectious abortion and other diseases of the reproductive organs of cattle.--Infectious white scours and calf pneumonia. (A) Minn.

Preparturition intoxications, acidosis toxemia of pregnancy or pregnancy disease of ewes. (A) Ky.

Infectious abortion and other diseases of the reproductive organs of cattle.--The effect of pituitrin in cows with delayed parturition, due to uterine inertia. (A) Minn.

Infectious abortion and other diseases of the reproductive organs of cattle.--The function of the corpus luteum in pregnancy. (A) Minn.

Hemorrhagic Septicemia.

Hemorrhagic diseases in cattle. (A) Nev.

Types of hemorrhagic septicemia found in Florida. Fla.

A study of the pathogenicity as well as antigenic and biologic properties of the organisms belonging to the hemorrhagic septicemia group. (A) Nebr.

An investigation of the variation of the pathogenicity of members of the hemorrhagic septicemia group of bacilli. (A) S. Dak.

Tuberculosis.

- Maintenance of herd free from tuberculosis. N. Y. State.
- A study of the causes and means of preventing the spread of tuberculosis in cattle and hogs in California. Calif.
- Cooperative experiments in the control of bovine tuberculosis. Calif.
- Part played by avian tubercle bacilli in tuberculosis of farm animals. (A) Nebr.
- Transmissibility of avian tuberculosis to swine and calves. Ill.
- The relation between avian tuberculosis and swine tuberculosis. Wis.
- Infection of cattle with avian type of B. tuberculosis. (A) Wyo.
- The intertransmissibility of avian and mammalian tuberculosis. (A) N. Dak.
- A study of the factors influencing sensitiveness to tuberculosis in domestic animals. Calif.
- Tuberculin tests.--Relative accuracy of the several tests. Minn.
- Tuberculin tests.--Relative desirability of the several combinations of these tests. Minn.
- Tuberculin tests.--Different responses to the several tests in relation to extent of lesions, activity, and virulence. Minn.
- Tuberculin tests.--Significance of slight and atypical reactions. Minn.
- Tuberculin tests.--Tuberculin hypersensitiveness in non-tuberculous cattle. Minn.
- The cause of skin lesions in cattle which have reacted to the tuberculin tests and a study of other no-lesion reactors. Wis.
- Miscellaneous investigations in veterinary science. Miscellaneous investigations.--Skin lesions in tuberculosis. Utah.
- Vaccination against tuberculosis. Wis.
- Vaccination trials on animals with bile-treated tubercle bacilli. Calif.
- A study of the relation of ozone to animal diseases. Md.

Forage Poisoning.

Fatal hemorrhage caused by damaged sweet clover hay and silage. N. Dak.

Moldy sweet clover poisoning. Ill.

The microflora of moldy silage and hay. Minn.

Poisonous Plants.

A study of the poisonous plants of New York State. N. Y. Cornell.

Poisonous range plants.--Studies with greasewood, Sarcobatus vermiculatus. (A) Nev.

Miscellaneous investigations in veterinary science. (a) Poisonous plants. Utah.

Chemical study of the toxic principles of the seeds and fruits of Lupinus argenteus. (A) Wyo.

Chemical examination of Delphinium cucullatum. (A) Wyo.

Chemical study of arrow grass (Triglochin maritima). (A) Wyo.

Chemical examination of Delphinium wendlandii. (A) Wyo.

Chemical study of Zygadenus wendlandii. (A) Wyo.

A study of prussic acid poisoning of stock by plants. N. Y. Cornell.

Loco eradication. Mont.

Miscellaneous.

Laboratory and field diagnosis of animal diseases. Ky.

Diagnosis of animal diseases. Post-mortem and laboratory examination of animals and diseased tissues. Ind.

Miscellaneous diseases of farm animals. Kans.

Investigation of obscure diseases.--The investigation and treatment of diseases affecting the University Farm animals. Minn.

Investigation of obscure diseases.--The investigation of obscure diseases in the State, with special reference to the infectious diseases. Minn.

Current laboratory diagnosis and examination of specimens. Nebr.

The chemistry of the blood and urine of animals affected with specific and obscure diseases. Minn.

Miscellaneous. (Cont.)

Anthrax.	(A & P)	La.
Anthrax prophylaxis by means of agressins.	(A)	Ark.
Necrobacillosis.--A study of the various activities of <u>Bacillus necrophorus</u> .	(A)	Wyo.

HORSE DISEASES

Investigation of horse disease in northwest Nebraska.	(P)	Nebr.
Swamp fever of horses and mules.		Tex.
"Leeches" of horses.		Fla.

^{1/}
CATTLE DISEASES

Effect of diseases in the cow on milk.--To determine the rôle played by milk, both in the spread of disease in cattle and causation of unfavorable symptoms of diseases in man.	(A)	Mich.
A study of the udder bacterial flora with particular reference to hemolytic streptococci.		Conn. Storrs.
Studies in udder infections with special reference to the causal organisms, serum reaction of infected animals, and methods of specific treatment.	(A)	Idaho.
Use of chlorine gas in treatment of infectious mastitis in cattle.		Fla.
Diagnosis and eradication of Johne's disease.		Wis.
A study of cultural methods of growing <u>Mycobacterium paratuberculosis</u> (causative organism of Johne's disease of cattle.)		Va.
Diarrhea in cattle, with special reference to infectious bacterial enterities (Johne's disease), black diarrhea, bloody flux, and diarrhea of parasitic origin.		Ky.
Infectious diarrhea of cattle.	(A & P)	La.
Study of scours in dairy calves.		Idaho.
Duration of immunity to Texas fever.		Tex.
A study of an obscure disease of cattle on the range.	(A)	Wyo.
"Salt sickness" in cattle.		Fla.
Congenital epithelial defects of calves.		Wis.

^{1/} See also General Diseases. p. 405.

1/
SHEEP DISEASES

Miscellaneous investigations in veterinary science.-- Diseases of sheep.	Utah.
Lamb diseases.--Causes of loss of lambs at lambing time. (P)	Mont.
Sheep losses in feed lots.	Colo.
Death losses among lambs in feed lots in the San Luis Valley.	Colo.
Progressive pneumonia in sheep. (A)	Mont.
The immunization of sheep against blackleg. (A)	Mont.
A study of entropion (turned-in eyelids) in sheep.	Ohio.

1/
SWINE DISEASES

Sanitation of premises and equipment for hogs.	Ky.
Diseases of pigs.--A study of their etiology and pathology.	Wis.
Diseases of swine, with special reference to infectious diarrhea.	Ky.
Investigation of hog diseases with particular reference to the development of immunity to hog cholera. (A)	Calif.
Hog cholera immunity.	Kans.
An experimental study of hog cholera and the factors concerned in immunity against the disease.	Mo.
Experiment on the viability of hog cholera virus.	Mo.
Determining the age at which pigs from immune dams become susceptible to hog cholera.	Md.
Immunization of suckling pigs.--To determine the practicability and advisability of immunizing suckling pigs before weaning.	Ill.
Determining the percentage of double treated hogs that may later become susceptible to cholera; to find the proper age that pigs may be immunized by the double treatment, and length of time immunity of double treated pigs may be expected to last.	Md.
Cholera serum production. Cost of producing hog cholera serum.	Ind.

1/ See also General Diseases, p. 405.

1/
POULTRY DISEASES

Poultry disease investigations.	Wis.
Miscellaneous investigations in veterinary science.-- Poultry diseases.	Utah.
Diseases of poultry.	Minn.
The diagnosis of poultry diseases occurring in New Jersey.	N. J.
A study of the prevalence and distribution of germ-borne diseases of chicks in North Carolina as shown by specimen sent in for the identification of causative factors.	N. C.
Poultry diseases.--Studies of bacillary white diarrhea, coccidiosis, sarcomatosis, and leukemia. Agglutination tests for bacillary white diarrhea.	Mich.
Disease and pest control in poultry. (1) Vaccination to detect tuberculosis. (2) Vaccination and agglutination test to detect bacillary white diarrhea. (3) Transmission of bacillary white diarrhea. (4) Insecticides for lice, mites, etc. (5) Disinfectants to destroy disease germs. (6) Inspection of sick birds and post-mortem of dead birds. (7) Prevention and control of bacillary white diarrhea, blackhead, and tuberculosis by sanitation.	N. Dak.
The relation of soil reaction to the infectious poultry disease organisms.	N. J.
Blood studies of normal and diseased domestic fowl.	N. C.
Histo-pathology of poultry diseases.--A study of the normal histology of poultry as a basis of interpreting pathologic lesions pathognomonic of certain diseases of poultry.	Kans.
Poultry diseases.--Study of anemia in chickens.	Ind.
A study of avian paratyphoid organisms.	N. J.
Experiments in the control of avian chicken pox by immunization.	Va.
Chicken pox.	Oreg.
Studies on chicken pox (<u>Epithelioma contagiosum</u> of fowls). (P)	Calif.
The value of vaccination with an autogenous bacterin for roup in chickens. (A)	Wyo.
Investigation of roup (avian diphtheria).	Calif.

- Roup and chicken pox control.--The immunizing value of powdered vaccine prepared from chicken pox virus and secondary bacteria invaders. Ill.
- Standardization of avian diphtheria, roup, and bird pox virus and vaccine, with special reference to improvement in the treatment of the disease. (P) Mass.
- Poultry disease investigations.--Studies of pure culture bacterial vaccines for roup and fowl typhoid. Studies of white diarrhea. Kans.
- A study of vaccinating and treating pullets for colds, roup, and worms as a means of increasing fall and winter egg production. Miss.
- Fowl typhoid. (P) Del.
- The epidemiology of fowl cholera. N. J.
- Bacteriophage as applied to germ-borne diseases among poultry with special reference to fowl typhoid. N. C.
- A search for European fowl plague in Nebraska. Nebr.
- Nervous disorder in the adult fowl that manifests itself by the inability to use one or more limbs, or in blindness. (P) R. I.
- A study of paralysis in chickens. (P) N. H.
- Poultry diseases.--Study of neuritis or paralysis in chickens. Ind.
- Investigations of a septicemia disease among fowls in North Carolina. (A) N. C.
- Turkeys, growing project.--Control of turkey diseases by sanitary precautions and isolation from other poultry. N. Dak.
- Study of blackhead in turkeys. (A) Conn. Storrs.
- A study of blackhead disease in turkeys with respect to the etiology, mode of transmission, and prevention. (A) R. I.
- Enterio-hepatitis or blackhead in turkeys. N. Dak.
- Poultry experiments.--Blackhead control in turkeys. Minn.
- A study of intestinal disinfectants to be used by poultrymen. (A) R. I.

Bacillary White Diarrhea.

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|---|-----|---------------|
| White diarrhea of poultry. | | Oreg. |
| Bacillary white diarrhea studies. | (P) | Idaho. |
| Bacillary white diarrhea. | (P) | Ohio. |
| White diarrhea. | (P) | Tenn. |
| Bacillary white diarrhea in hens and chicks; distribution, diagnosis, and prevention. | | Ky. |
| Investigation of white diarrhea in chickens. | (P) | Wis. |
| A study of white diarrhea in chicks. | (A) | R. I. |
| Mortality of chicks caused by white diarrhea in the parent stock. | | Minn. |
| The effects of white diarrhea infection on hens. | | Va. |
| Tests of poultry for bacillary white diarrhea. | | N. H. |
| General disease investigations (diagnosis of poultry diseases). Primarily white diarrhea testing. | | Colo. |
| Study of intradermal tests for white diarrhea in chickens. | | Conn. Storrs. |
| Agglutination studies in bacillary white diarrhea. | | Pa. |
| Bacillary white diarrhea.--To determine the efficiency of the serum agglutination test as an aid in eradicating bacillary white diarrhea. | | Ill. |
| Confirmation of agglutination tests by post-mortem examination of poultry that have shown positive reaction to bacillary white diarrhea in the field. | | N. C. |
| A bacteriological study of the ovaries of hens giving a positive reaction to the macroscopic agglutination test for bacillary white diarrhea infection. | | Va. |
| Ascertaining what percentage of pullets in a breeding flock should be laying before blood should be tested for indications of bacillary white diarrhea infection. | | Mass. |
| The duration of the "carrier" stage of bacillary white diarrhea reactors to agglutination test for same. (1) Study of the intermittent reactor to the agglutination test for bacillary white diarrhea and its rôle in the dissemination of this disease. (2) The duration of soil pollution with <u>S. pullora</u> ; its effect in the propagation of this disease and the treatment of chick ranges for its elimination. | (P) | N. C. |

Bacillary White Diarrhea. (Cont.)

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| Transmission of bacillary white diarrhea in incubators. | Iowa. |
| A study to determine means of eradicating white diarrhea in baby chicks. | Miss. |
| Studies of infections that are transmissible from hens to their offspring through the medium of eggs. (P) | Calif. |

PARASITES

General.

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|---|-------------|
| General survey of animal parasites affecting domestic animals in Porto Rico. | Porto Rico. |
| Animal parasites. | Ky. |
| A study of animal parasites. | Wis. |
| Parasites of sheep. | W. Va. |
| Parasitic diseases of sheep. | Oreg. |
| The diagnosis of parasitism in Montana sheep. (P) | Mont. |
| Studies in poultry parasitology. | Calif. |
| Poultry parasites. | Mich. |
| Resistance of animals to parasitism. Factors in the resistance of chickens to parasitism. (P) | Kans. |

Endoparasites.

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|---|--------|
| The endoparasites of man and domesticated animals. | Minn. |
| Life history and control studies of pathogenic parasites of food animals. (A) | Mich. |
| Coccidiosis in cattle. (P) | Colo. |
| Coccidiosis in cattle. | Mont. |
| Sheep gadfly, grub in head, sheep rot. | W. Va. |
| Life history of <u>Sarcocystis tenella</u> , parasitic in the muscles of sheep. (A & P) | Wyo. |
| Control of liver flukes and lung worms in sheep and goats. (P) | Oreg. |

Endoparasites. (Cont.)

- Methods of prevention and treatment of liver fluke disease in cattle, goats, and sheep in Porto Rico. Porto Rico.
- Stomach worms in sheep and goats. Tex.
- A study of resistance and susceptibility of lambs to the stomach worm, Haemonchus contortus. Ohio.
- Life cycle of Thysanosoma actinioides (Taenia fimbriata), a common tapeworm of sheep. (A & P) Wyo.
- Life cycle of Taenia (Moniezia) expansa. (A & P) Wyo.
- Life history study of the Necator suilla and its possible relation to the problem of human ankylostomiasis in Porto Rico. Porto Rico.
- Life history study of Stephanurus dentatus and its economic importance in Porto Rico. Porto Rico.
- Swine sanitation.--To determine the length of time which the eggs of roundworms (Ascaris lumbricoides) infestation of hog lots persists if ground is rested, pastured, plowed, or oiled. Ill.
- Kidney worms (Stephanurus dentatus) in swine. Fla.
- Life history studies of Pycnoscelus surinamensis L., the roach which is the intermediate host of Manson's eye worm (Oxyspirura mansonii), including study of its natural enemies and methods of control. Fla.
- Manson's eye worm of poultry (Oxyspirura mansonii). Fla.
- Flukes of the genus Collyriclum as parasites of poultry. Minn.
- A study of Ascaridia perspicillum. N. J.
- Substitution of nicotine sulfate solution for tobacco dust in the treatment of roundworms in poultry. (P) La.
- Studies of the life histories of the chick tapeworm (Choanotaenia infundibuliformis) and the chick nematode (Heterakia perspicillum). (A) Kans.
- Embryology of cestodes. House flies as an agent in disseminating fowl tapeworm. Kans.
- Coccidiosis of poultry. Oreg.
- Therapeutic value of dry skim milk in coccidiosis. Ill.
- A study of the hookworms of the dog and the domesticated fox. Minn.

Ectoparasites. (See Entomology--Insects Annoying Man and Animals, p.125)

MISCELLANEOUS

State regulatory work (veterinary).	Minn.
Serum production.	Nebr.
The preparation and distribution of biological products.	Ky.
Investigation of alkali disease.	S. Dak.
Salmon poisoning of dogs.	Oreg.
Infectious diseases of foxes and other fur bearers.	Wis.

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